A Primer on the Economics of Industrial Policy

A PRIMER ON
THE ECONOMICS OF INDUSTRIAL POLICY

A Primer on the Economics of Industrial Policy

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Preface

The popular impression of economists is that, like the eleven Canadian first ministers, they can be relied on never to agree on anything. In fact, there is quite substantial agreement among economists (as there may well be among first ministers!) over a wide range of issues. One such issue is industrial policy. Most economists are leery of industrial policy, especially when it entails the government's trying to expand some industries, sectors, or production techniques at the expense of others. (They usually are less uncomfortable when industrial policies aim at smoothing inter-sector or inter-industry adjustments that the market dictates, though even here there may be problems.) What makes them skeptical is their belief that on its own the market is likely to arrive at an efficient allocation of society's resources to various sectors and industries. And even in those cases where market failure blocks an optimal allocation, many economists worry that government failure will prevent public policy from improving matters and may even make them worse.

The purpose of this book is to explain, in language non-specialists can understand, just why industrial policy makes economists nervous. The discussion is aimed primarily at two groups: ordinary citizens and non-economist policymakers, who, if they have been at their posts any length of time, probably are weary of having their economist advisers wag disapproving fingers every time the subject of industrial policy comes up. The goal throughout is to provide an understanding of how markets allocate resources and of why governments may have difficulty correcting any market failures.

Although the treatment is completely non-technical, I hope I have not cut too many analytic corners; as always, the manner of presentation should limit neither the depth nor the breadth of the discussion. As John Kenneth Galbraith has it: 'There is nothing in economics that cannot be explained in plain language'. (Galbraith, of course, favours an active industrial policy.) Although the arguments are geared for the non-specialist reader, it is not inconceivable that one or two variations on some old themes will interest practising economists.

Since time, space, and my own inclination dictate that this not be a textbook, the coverage of topics is idiosyncratic rather than encyclopaedic. While I have felt obliged to mention most of the arguments that are commonly heard for and against industrial policy, I have concentrated on only a few of the major areas. Since my own speciality is public sector economics, it is not surprising that they are elementary welfare economics, public choice, non-market failure, public goods and externalities rationales, the theory of the second best, and compensation theory. (The non-specialist reader should not worry if most of the last sentence was incomprehensible.) Beyond this, I have tried to stress those arguments about which popular misconceptions are greatest. Where arguments are touched upon but not discussed in detail, references to the relevant literature are provided; in most cases, these materials should be accessible to non-economists.

The plan of the book is as follows.

Chapter 1 provides a definition of industrial policy, suggests why it is of interest to Canadians, and briefly introduces the twin notions of market failure and government failure.

Chapter 2 explains what economists mean by the term 'efficiency' and why they expect the market to produce an efficient allocation of society's resources among their various possible purposes. It also elaborates the idea of government failure and suggests that, in many areas of public policy, what is asked of government is often more than government can – or wishes to – deliver.

Chapter 3 presents three standard objections to reliance on market processes: that markets cannot be depended on to produce a satisfactory distribution of income; that their operation is often frustrated by monopolies; and that consumer preferences, which economists set so much store on markets' honouring, do not deserve to be honoured. The response to the first two objections is that even if they do present serious obstacles to an efficient market solution to problems of allocation, industrial policies are not the way to deal with them. The third argument is simply disputed.

Chapter 4 discusses the possibility that industrial policies are needed to offset market failures caused by the effects of public goods and externalities. Particular attention is paid to the argument that the market will fail to provide efficient amounts of research and development, one of the characteristic inputs of high-technology industry. While this possibility is admitted, it is argued that existing policies may already compensate sufficiently.

Chapter 5 treats several other well-known forms of market failure and their possible roles in justifying industrial policies of one kind or another. Since this chapter is essentially a summary as it stands, trying to summarize it here probably is not worth the effort.

Chapter 6 deals with the relationship, if any, between industrial policy and the theory of the second best. In brief, second-best theory suggests that public intervention may be required even in markets where there is no obvious market failure simply because there are failures in the markets for competing or complementary goods. The argument presented here is that while this theory may well be true, implementation of effective second-best policies requires more information than is usually available to policymakers.

Chapter 7 discusses the possibility that what the economist would regard as efficient changes in the structure of the economy are often blocked by those who stand to lose if such changes are made. While paying compensation to the victims of change may not be strictly necessary, potentially efficient reallocations probably will be blocked politically if it is not paid. Unfortunately, paying it creates entirely new efficiency problems.

Finally, Chapter 8 tries to distil the lessons of the earlier chapters into a set of maxims for policymakers. It is hoped that these maxims, which generally recommend caution, will guide policymakers in their deliberations on industrial policy.

Acknowledgements

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A PRIMER ON
THE ECONOMICS OF INDUSTRIAL POLICY

The statesman, who should attempt to direct private people in what manner they ought to employ their capitals, would not only load himself with a most unnecessary attention, but assume an authority which could safely be trusted, not only to no single person, but to no council or senate whatever, and which would nowhere be so dangerous as in the hands of a man who had folly and presumption enough to fancy himself fit to exercise it.

Adam Smith, *The Wealth of Nations*

1
Introduction

The purpose of this book is to see what mainstream economic theory has to say about the desirability of the more common forms of industrial policy currently observed in or proposed for Canada.

WHAT IS INDUSTRIAL POLICY?

Laymen should be forgiven if they have the impression that there are almost as many definitions of industrial policy as there are economists who have written on the subject. Even a brief review of the literature reveals a considerable range. Variously, industrial policy

> [Concerns] the structure of an economy,... [refers to] discrete governmental measures as well as to the sustained pursuit of certain ends or the persistent use of certain methods or devices,... [and covers] all economic activities. (Diebold 1980, 6,5)

> Embraces all acts and policies of the state in relation to industry... all aspects of State [*sic*] attitudes toward industry in its economic, social and environmental setting. (Bayliss 1980, 13)

> [Means] policies which are concerned in some way with economic innovation – with research and development, with new technologies and their diffusion. (Carter 1981, 1)

> Is to innovate rather than imitate, implying a broad industrial shift that modifies almost every single facet of industrial activity, from finance to research and marketing. (Shepherd 1980, 117)

> [Should be] designed to encourage the growth of manufacturing and reverse the deficit in end product trade. (Lazar 1981, 46)

Moreover, industrial policies can be subdivided in several ways:

> Defensive... mainly concerned with keeping in being some structural arrangement, such as domestic production of certain goods that will not survive international competition;... adaptive,... [concerned with facilitating] structural change by helping to shift resources to new uses that do not require protection or subsidy or by increasing efficiency in existing lines of activity;... [or] initiative,... [in that policy] *initiates change* rather than simply responding to it. (Diebold 1980, 7–8)

> Positive or negative, i.e. positive in relation to the state's participation in, or control of, industry; or negative, to the extent that it might be the industrial policy of the state to minimize intervention in industry. (Bayliss 1980, 113)

> Interventionist industrial policies involve direct control over the way in which resources are allocated.... Non-interventionist policies rely on the market to allocate resources. They range from 'hands-off' policies (e.g. free trade) to policies defining the rules of the game (e.g. competition policy) to tax and other policies designed to influence incentives without directly controlling market variables such as price and quality. (Davenport et al. 1982, 1–2)

Faced with so many alternative definitions, it is hard to know which to choose. Perhaps just one more will help. A recent Ontaro Economic Council study says:

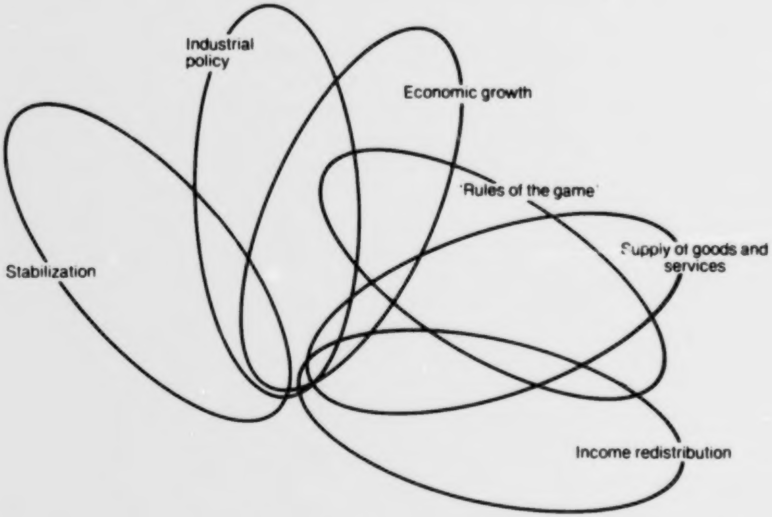
> An industrial policy is any government program that directly affects the economic activity of an industry, company, or plant. Industrial policies are designed to change economic structures, behaviour, and/or performance. (Davenport et al. 1982, 1)

Although such an all-inclusive definition is useful for some purposes, this study demands a slightly narrower definition. Therefore, industrial policy is here regarded as any policy that involves a conscious attempt by a government to alter the composition of either the outputs produced in the non-governmental sector of the economy or the inputs used to produce this output. This definition permits discussion of the traditional sort of policy, designed to favour one sector of the economy over others (the National Policy of 1879 is only the most obvious Canadian example), as well as of more recent initiatives to encourage the use of particular inputs – research and development, for instance.

Industrial policy's place in the policy galaxy

A natural next question is where industrial policy fits in the larger galaxy of public policies. Figure 1 is a sketch of how one observer sees the six

FIGURE 1
Industrial policy in relation to other policies


Industrial policy
Economic growth
'Rules of the game'
Supply of goods and services
Stabilization
Income redistribution

major policy orbits relating to one another. The six are industrial policy, policies for economic growth, 'rules-of-the-game' policies, policies designed to effect income redistribution, and policies involving the public provision of goods and services (education, health care, and national defence being the most important examples). Although astronomy of this sort is bound to be inexact and viewpoint affects any two-dimensional rendering of three-dimensional events, the figure does suggest one or two useful observations.

In its intent, at least, industrial policy is probably most closely related to policies designed to promote economic growth (though, of course, many economists would argue that it is likely to frustrate growth). On the other hand, it probably has relatively little overlap with stabilization policy.[1]

Neither does industrial policy have much to do with income redistribution, except perhaps when policies to aid various industries – farming and fishing, usually – are justified on the grounds that people who work in these industries are generally in the lower income groups. This is not to suggest that industrial policy cannot have significant effects on the distribution of income. Quite the contrary. Palda (1979) argues that one of the main reasons the Science Council of Canada supports a high-technology industrial strategy is that it wishes to protect the incomes of the highly qualified workers whose spokesman it considers itself. Yet the stated aims of industrial and stabilization policies are quite different.

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[1] Defensive industrial policies, such as tariff protection for declining industries do, however, often exhibit a pronounced counter-cyclical pattern. It certainly is no coincidence that both the early 1930s and the early 1980s were periods of rising protectionism.

Similarly, industrial policy and the public provision of goods and services do not overlap extensively, except insofar as the pattern of public education is intended to alter levels of output in various types of industry. Of course, much recent literature suggests that the true intent of the public provision of goods and services is income redistribution via in-kind transfers.

Finally, policies that set the 'rules of the game' are generally aimed more at providing a fit environment for economic growth, at ensuring the provision of crucial goods and services, and at guaranteeing that no one's standard of living falls below a certain minimum level than at promoting the growth of one or another type of industry. Of course, the way the game is currently played, industrial policy often stacks the rules in favour of particular sectors, industries, or even firms. Surely, there is no happier lot for an industrialist than to be the chosen instrument of public policy.

Although much time could be spent elaborating this taxonomy of policies, it probably is best to move on. The reader may already have inferred that 'industrial' is used here to refer not to manufacturing only – though this is often the intent of many users of the term – but to economic activity in general. The narrower usage has been most common in the literature on de-industrialization (see, for instance, Blackaby 1979; Cripps 1981). The broader construction adopted here is meant to suggest not only that policies in other sectors have effects on the industrial sector, but also that industrial policies can aim at several sectors of the economy simultaneously.[2]

Industrial policy or industrial strategy?

Finally, a word should be said about the relationship between industrial policy and industrial strategy. As the earlier OEC study suggests:

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[2] For instance, the federal government's current industrial 'strategy' relies largely on megaprojects. Many of them have spin-offs in manufacturing, although the policies are aimed at the resource sector (see MacEachen 1981).

> A[n] industrial strategy is a package of policies that comprise a conscious government plan with respect to the organization and nature of industrial activity. A government's industrial policies will not necessarily form an industrial strategy. (Davenport et al. 1982, 2)

Thus, in the terms introduced in the previous section, what most would-be industrial strategists mean by industrial strategy is a positive, initiative industrial policy – positive in that the government is usually seen as a prime mover, and initiative in that policy tries to shape (or at the very least anticipate) market changes. While in theory nothing prevents an industrial strategy from being negative and adaptive – indeed, this is a direction many economists would like to see policy take – in practice, the term is almost invariably used in the sense described.[3]

Unfortunately, the distinction between industrial policy and industrial strategy is not widely recognized. Many participants in the policy debate use the terms interchangeably; some recognize a difference but use them as synonyms on the grounds that industrial policies make little sense unless they are adopted as part of a larger strategy. Little wonder then that the distinction often becomes blurred.

While the purpose here is to deal with industrial policy, rather than strategy, much of the discussion concerns the theoretical and practical difficulties posed by positive, initiative policies. It may thus be useful at the outset to provide a synopsis of the underlying view on the desirability of an industrial strategy.

As the epigraph from Adam Smith suggests, most economists are leery of any and all attempts to plan grand strategies for an economy. The heart of the argument rests in the hardly debatable proposition that the future is uncertain (though, of course, it seldom looks so in retrospect!). Uncertainty does not, of course, preclude all attempts at planning: large corporations engage in planning daily (see Galbraith 1967). But public planners face two special problems. First, planning for an entire economy is a much taller order than planning for even a very large corporation.

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[3] The emphasis is obviously on a conscious plan. Of course, like the bourgeois gentleman who was delighted to learn that all his life he had been speaking prose, some governments that conduct industrial policy may also be engaged in efficient yet unconscious strategy-making. It seems more likely, however, that many governments that desire to speak prose, as it were, end up issuing disjointed and inarticulate noises.

Second, governments have great difficulty in adapting a plan to changing circumstances.[4] Economic change often requires, for instance, that enterprises be shut down, resulting in the dismissal of workers and managers. Obviously, the last thing any government wishes to do is to dismiss constituents. Yet if it is attempting to set strategy, it may face this prospect either directly as an employer or through a moral responsibility to those who must be let go – in that public policies encouraged them to make career and location choices that they now regret.[5]

Of course, the general undesirability of strategy-making does not mean that governments cannot occasionally, perhaps even often, make useful contributions to a country's industrial development. Just when public intervention may be appropriate is the subject of this study.

WHY STUDY INDUSTRIAL POLICY?

There are at least two reasons why the study of industrial policy is important to Canada at this time. The first is that industrial policy has been a more or less constant preoccupation of policymakers throughout Canadian history, so it is *always* relevant for study. The second is that the economic difficulties of recent years have persuaded many commentators that Canada's current industrial policies are seriously deficient.[6]

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[4] Assuming the following quotation does justice to his views, Roland Frazee, chairman of the Royal Bank, shows surprising unconcern for this problem. '"I'm not scared of an industrial strategy," Frazee says. "We in the Royal Bank do strategic planning. Why shouldn't the government do strategic planning?" He notes that the bank has picked its winners for the 1980s – industries such as communications, resources and agriculture, for example – and sees no reason why government can't pick winners as well"' (quoted in Shepherd 1980). One obvious question is why the government has to pick winners if the bank and other private lending agencies do their job.

[5] Michael McCracken calls this the 'UFFI syndrome'. According to McCracken, by recommending urea formaldehyde foam insulation to homeowners, the federal government effectively created a moral obligation to the people who insulated their homes with this material. The capital loss suffered by UFFI users pales in comparison to that which might be suffered by someone who undertook professional training in a field that the government recommended as a likely growth industry but that ultimately did not work out (see Purvis forthcoming).

[6] Occasionally, this dissatisfaction finds a voice in complaints that Canada does not have an industrial policy. If the critics are using 'policy' in the sense of 'strategy', their point may be well taken (though it may be that Canada has the *wrong* strategy). However, if the argument is simply that the country has no policies for economic development, it is clearly wrong. As Davenport et al.

It is no exaggeration to say that the problem of industrial policy in Canada dates from the first days of European settlement. In fact, settlement itself occurred mainly as a result of the 'industrial policies' of the sponsoring governments.[7] The early English trading companies, of which the Hudson's Bay Company was the most successful, were a result of Britain's desire both to diversify her trade and to compete with the other European trading nations (see Rich 1960, chap. 1, 2). In much the same way, the king of France commissioned Jacques Cartier to 'discover certain islands and countries where they say you can find large quantities of gold and other precious things'. During the seventeenth and eighteenth centuries, the persistent, occasionally violent rivalry between settlers and fur traders in New France and between settlers and men of the fishing fleets in Newfoundland presented ticklish problems of industrial policy to the economic mandarins of the French and British courts. And, of course, Talon's intendancy of New France in the late seventeenth century saw one of the first large-scale experiments in social and economic planning (see, for instance, Finlay and Sprague, 1979).[8]

The preoccupation with the pattern of economic development did not end with the shift of political power to North America. In the 1850s and 1860s, the parliament of the Province of Canada held long debates about the relative merits of railways, agriculture, and manufactures (see McCallum 1980). And, of course, Confederation itself has often been portrayed, at least in part, as an attempt by Britain's surviving North American colonies to salvage something from the loss of economic reciprocity with the United States in the post-Civil War years. The need for economic development was also a constant refrain during the largely depressed 1870s, climaxing with the introduction of the National Policy. For the next seventy years or so, it was widely viewed as a triumph of industrial policy for two reasons. First, it was seen as a carefully co-ordinated triad, combining protection of domestic manufacturing with subsidies for East-West transportation and planned settlement of the Prairies. Second, it was thought to be successful. Since the Second World War, however, analysis by economists and economic historians has challenged both these assumptions. Michael Bliss (1982) argues that the National Policy was not carefully co-ordinated; on the contrary, he says, it was largely *ad*

1982 makes clear, industrial policies abound in Canada.

[7] At least they resulted in exploration, settlement being a controversial matter in the first years of the New World.

[8] Most economists would argue that this first attempt at planning was no more successful than subsequent ones.

hoc, and the tariff, in particular, was little more than politicians' usual reflex response to difficult economic times. In much the same spirit, Kenneth Norrie (1979), Peter George (1968), and others conclude that the building of the Canadian Pacific Railway and the opening of the Prairies probably came a decade too soon, while the consensus view of modern international trade specialists is that the tariff secured a Canadian presence in manufacturing only at the cost of a standard of living lower than would have resulted from allowing resources to move to those sectors where they could earn the highest returns.

The debate on appropriate industrial policies did not flag during the century following the institution of the National Policy.[9] Between the wars, as Bliss (1982) demonstrates, there were important differences between the King and the Bennett governments on questions of microeconomic policy, while even the ascendancy of the continentalist school occasioned by the liberal international environment of the immediate post-war years was, in retrospect, short lived. By the mid-1960s, certainly, the traditional challenge from the economic nationalists, many of whom favour an active industrial policy, had been vigorously renewed (see Saunders 1982). The centenary of the National Policy in 1979 seemed, if possible, to heighten interest in industrial policy. As measured by the flow of documents on the subject, this interest remains acute. Not incidentally, there have been persistent rumours from Ottawa that a new national industrial strategy is on its way.[10]

No doubt much recent interest in industrial policy stems from the fact that debate on the subject has a natural counter-cyclical rhythm. When times are good, arguments – true or not – that policies are inappropriate lose credence (see Watson 1982). In recent years, however, the slowdown in economic growth has caused renewed interest in a change in policy. Of course, the secular growth of Japan, where industrial policies *seem* to be more interventionist than in other areas of the world, would have contributed to interest in the subject even if Western growth had not largely disappeared.[11] That the Western economies' difficulties of the last decade have motivated a widespread interest in industrial policy is in many ways unfortunate. The analysis of so complicated an event as the recent slowdown in economic growth is not likely to prove helpful in the construction of policy. There are simply too many competing explanations for it and not enough information to choose among them. When things go wrong, however, it is always a temptation to change policy. In too many cases, unfortunately, action is taken despite the lack of a clear reason for believing it will make things better.

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[9] See Bothwell and Kilbourn 1979, Laxer 1981, and Bothwell, English and Drummond 1981, for summaries of various phases of this debate.

[10] In this regard, see French 1980 and MacEachen 1981.

[11] Whether Japanese industrial policies are more or less interventionist than most Western countries' is open to question. Although there may be greater consultation with government about the direction industrial development should take, there seems to be less public finance of research and development (Schott 1981; *The Economist* 21 June 1982). Whether further study of the Japanese case would be useful to the West is also debatable. Social institutions

CURRENT CANADIAN INDUSTRIAL POLICIES

Another reason for studying industrial policy is that it is the stock-in-trade of Canadian governments, federal and provincial. Like all public policies, it should be subject to continuous scrutiny.

The purpose of this book is not to describe industrial policies current in Canada. Several useful guides to what is going on have been published recently, some by the agencies to which these policies have been entrusted and some by independent commentators.[12]

Still, it may be useful to sketch briefly the outlines of what Canadian governments are doing to influence the industrial structure. Table 1 summarizes the federal government's annual financial assistance to private business at the end of the 1970s. Granting the difficulty inherent in adding together outright subsidies and loan guarantees (see Break 1982), the total comes to the impressive figure of more than $4 billion (1.5 per cent of GNP). Moreover, this amount does not include payments made to farmers under the various price-support programs for agricultural products or the public capital committed to crown corporations (of which the federal and provincial governments combined now have more than three hundred). Similar calculations for Ontario and Quebec put the total of subsidies and capital assistance at substantially more than 0.5 per cent of gross provincial product in each (Davenport et al. 1982, tables 2–10).

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and attitudes cannot easily be transplanted. Japan's ability to manage industrial change may come mainly from a corporatism that is unnatural, possibly even inimical, to most North Americans. (For an argument that Japanese society is fuelled by endemic fear, see Bruce-Briggs 1982.)

[12] See, for instance, Canada 1979; Johnson 1980; Doherty, McQuillan, and Sylvain 1979; Tupper 1982; M. Gordon 1981; Davenport et al. 1982. Moreover, the Ontario Economic Council is planning other publications concerning the development and current practice of industrial policy in Canada in general and in Ontario and Quebec in particular (Green, forthcoming; Davenport, forthcoming).

TABLE 1
Major programs of direct federal assistance to business
(Millions of dollars in 1978-9 or latest year)

	Grants & contributions	Loans	Loan guarantees/ insurance	Total
Financing				
Federal Business Development Bank		556		556
Regional development incentives	77			77
Small business loans			200	200
Farm improvement loans			232	232
Fisheries improvement loans			27	27
Farm Credit Corporation		513		513
Indian Economic Development Fund	32	3	3	38
Total				1643
Exports				
Export Development Corporation				
Export loans and guarantees		1071		1071
Export insurance (value of goods)			1299	1299
Program for Export Market Development	6			6
Promotional Projects Program	5			5
Total				2381
Research and development and innovation				
Industrial Energy R&D Program	2			2
Industrial Research Assistance Program	18			18
Enterprise Development Program	26			26
Defence Industry Productivity Program	40	6		46
Program for Industry Laboratory Projects	8			8
Scientific and Technology Employment Program	6			6
Unsolicited Proposals Program	14			14
Co-operative projects with industry	2			2
Total				122

TABLE 1 (continued)

	Grants & contributions	Loans	Loan guarantees/ insurance	Total
Labour force				
Canada Manpower industrial training	84			84
Job Experience Training	45			45
Total				129
Adjustment assistance				
Enterprise Development Program		6	120	126
Canada Manpower mobility program	12			12
Canada Manpower consultative service	3			3
Adjustment assistance benefits	3			3
Total				144
Total				4419

SOURCE: Canada 1979, 8.

Of course, governments can do much more to influence the industrial structure than simply spend money.[13] Among the more common expedients in Canada are:

- *Tax favours.* Most estimates of the value of current exemptions and deductions from federal corporate income taxation put it at several billion dollars a year (see Boadway and Kitchen 1980). Sales and excise taxes are also generally applied in a discriminatory way across sectors.

- *In-kind transfers.* Governmental 'gifts' range from roads, harbours, and subsidized energy to managerial, scientific, and other technical knowhow. Recently, the Quebec government has been particularly active in trying to provide expertise to private firms (for a summary of its programs, see Quebec 1982, part 2). It is especially concerned that small and medium-sized firms often do not have access to technical knowledge of one kind or another (but see Chapter 4 of this book).

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[13] Bliss (1982) refers to 'thousands' of public programs. This is no exaggeration. The federal government's *Assistance to Business in Canada* (Canada 1979) fills more than two hundred pages with brief descriptions of programs. A partial listing of the titles of these programs takes up thirteen pages of Davenport et al. 1982.

– *Favourable regulation*. Perhaps the most important example of regulatory favouritism in Canada is the protective tariff, which, as already suggested, was originally introduced in an explicit attempt to promote the growth of one economic sector, manufacturing. Other examples of promotional regulation include the exemption of exporters from anti-combine laws and the reservation of oil reserves for Canadian firms.

– *Preferential procurement policies*. Given the significant reduction in tariffs during the post-war period, most governments have increasingly resorted to non-tariff barriers. Chief among them are rules and regulations requiring government agencies to purchase supplies produced within their jurisdiction. One particularly ominous aspect of this trend is the increased use of such policies by provincial governments, a development that strikes at the very heart of the Canadian common market (see Pestieau and Maxwell 1980).

– *Grants of capital*. Governments have increasingly become sources of corporate finance, using many and varied instruments. Among the most common are loans from government investment agencies (for example, la Société du Developpement Industriel in Quebec and the various Ontario development corporations), loans from government-run pension plans, direct capital transfers from the public budget, and loan guarantees. While the last impose a cash cost on the government only if the borrower ultimately cannot pay, they have an immediate and obvious effect on the government's ability to raise its own capital.

– *Public enterprise*. Although the crown corporation is widely regarded as a Canadian invention, the nationalization of enterprise – strictly, the formation of national enterprises – is now common in most Western countries. The number and the variety of public enterprises have increased substantially at both levels of Canadian government in recent decades. The most common reason for government's being in business – in fact, it verges on definition – is that a Canadian presence in the industry in question has been deemed desirable (M. Gordon 1981).

A taxonomy of industrial policies

At this point, it seems useful to spend a moment trying to file these and other examples of current Canadian industrial policies according to the classifications at the beginning of the chapter. Table 2 is not exhaustive, and it certainly is inexact; in fact, precise classification is impossible, since

TABLE 2
A taxonomy of industrial policies

	Positive Interventionist Discretionary	Negative Non-interventionist Non-discretionary
Defensive	Emergency quotas and tariffs in declining industries Bail-outs Regional variations in UIC payments and rules	General measures of protection
Adaptive	Special adjustment-assistance for redundant workers Labour-market information programs Job creation in declining regions Retraining for employees of plants, firms that close or in declining industries	Free, universal education Unemployment insurance Trade liberalization Tax favours for mobility Easy bankruptcy laws Tax favours for vocational education
Initiative/Innovative	Public investment in high technology Subsidies for R&D Most-favoured-industry policies Buy-Canadian, buy-provincial policies DREE and similar assistance Subsidies for Canadian oil drillers	General tax incentives for R&D, investment 'Steady-helm' policies

any given policy instrument can be used for different ends and so could fall in more than one row at a time. For example, special measures of protection can be used to protect both infant and moribund industries and could, therefore, be classified as either initiative or defensive.[14]

This lack of clean-cut distinctions means it probably is not useful to spend too much time on taxonomy. Yet perhaps one point should be made here. It is simply that policies cannot be deemed good or bad solely because they fall into 'good' or 'bad' cells of the matrix in Table 2. To be sure, most economists would probably argue that in the long run defensive policies are likely to prove harmful, and that the government is simply not equipped to implement initiative/innovative policies successfully, so adaptive policies should be preferred. Still, it should be remembered that policy can encourage too much adaptation. Policies that completely eliminated the costs of mobility, for instance, would shift the economy towards too much shuffling of resources from place to place and employment to employment. By the same token, both defensive and adaptive policies sometimes make good sense. On this last point, however, most economists are likely to respond 'show me'. The reasons for their skepticism are the subject of much of the rest of this book.

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[14] Davenport et al. (1982) use 'innovative' rather than 'initiative'. Table 2 combines the two terms, perhaps awkwardly, as 'initiative/innovative'. Note that the table uses 'discretionary' and 'non-discretionary' as synonymous with the other two ways of describing policy style.

A NORMATIVE APPROACH TO INDUSTRIAL POLICY

As already suggested, this book takes an explicitly normative approach to the problems posed by industrial policy. In fact, its subject is the *desirability* of the more common forms of industrial policy currently observed in and proposed for Canada, particularly central Canada.

Such a normative approach presents two problems, both of them practical. The first is, as Wiseman (1981) argues, that economic theory is not yet sophisticated enough for normative work in the extremely complicated area of industrial policy. Until technique improves, so the argument goes, economists would do better to confine themselves to positive analysis of how industrial policy is made and what its immediate effects may be.

More work on positive questions is certainly needed, but the view taken in this study is that economists must also participate in normative analysis precisely because it is so difficult. If they do not, policy may be left to those who do not fully appreciate just how complicated economic relationships can be. Of course, a clear understanding of the difficulty of setting and implementing policy in a general-equilibrium system – a system in which most things affect most other things – leads, above all, to a sense of caution. The fact that the economist's role may be largely prophylactic does not, however, mean that it is not useful.

A second practical objection to normative economic analysis is that even when it is done well, it may not lead anywhere. After surveying existing Canadian industrial policies, it would be hard to conclude that economic theory has had an overriding influence on the policy process. On the contrary, it often appears that the normal criteria of economic efficiency are far from policymakers' minds when they consider the many possible approaches to solving industrial problems. Yet in a world that often seems dominated by lobbyists for special interests, someone must lobby for the general interest. Though it smacks of professional *hubris* to say so, this is a role for which the economist is ideally suited.[15]

The situation may not be entirely hopeless, however. Unless industrial policy is at least roughly consistent with the dictates of economic efficiency, it has little chance of achieving its purpose, which is presumably to help make the material existence of Canadians more attractive. Thus, the argument that economic theory should have greater weight in the determination of policy may not be just another academic pipedream. In some more-or-less long run, citizens presumably stand ready to reward those who make them richer.

THE ARGUMENT IN BRIEF: MARKET FAILURE, GOVERNMENT FAILURE, AND INDUSTRIAL POLICY

Although it will be elaborated in subsequent chapters, the argument presented in this study is a simple one, and it seems useful to summarize it before proceeding to a consideration of cases.

From Adam Smith onwards, economists have generally been skeptical of governmental attempts to alter the market's allocation of resources to the various industries in the economy. Their skepticism is based on a presumption that unfettered markets produce an efficient allocation of these resources. Profit-maximizing firms and 'utility-maximizing' individuals can be depended on to use resources where their returns are greatest, for if they are used elsewhere, someone can earn a profit by rearranging the allocation. If this freedom means some industries grow and others decline, the economist's usual reaction is that this is what efficiency requires.

The presumption that markets allocate resources efficiently is, of course, open to rebuttal.[16] There may be times when markets fail to generate an optimal allocation of resources. In general, such market failures occur when the costs and benefits of actions are not fully revealed to participants in transactions. Over the last several decades, much of the theoretical literature in economics has consisted of attempts to determine in which situations and at what times markets are most likely to fail. The import of this literature is that the market is a very imperfect mechanism for allocating resources.

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[15] In fact, a political scientist (Lindblom 1977) deserves credit for the phrase 'lobbyist for the public interest'.

[16] See Schultze (1977) for a discussion of what he calls the 'rebuttable presumption'.

Despite the (at least theoretical) ubiquity of market failure, most economists still put the burden of proof on those who argue that the market is likely to fail. For a number of years, however, many seemed to think that simply establishing a *presumption* of market failure was enough to warrant government intervention in the supply or distribution of particular goods or services. The implicit assumption seems to have been that a public-spirited government would hire an economist (better still, a committee of economists) to calculate and implement whatever corrective taxes, subsidies, or regulations the theorizing called for. In recent years, however, economists have increasingly turned their attention towards the analysis of public decision-making and policy implementation (see, for instance, Wolf 1979). The literature spawned by this shift of focus has made it clear that even well-intentioned governments may experience considerable difficulty in implementing their good intentions. Moreover, contrary to economists' earlier assumptions, governments do not always aim at the strict maximization of social welfare. Rather, politicians and bureaucrats sometimes impose their own goals on the process of making and implementing policy, and these goals may or may not be consistent with the usual criteria of economic efficiency.[17]

What has been brought back from the economist's foray into the habitat of the political scientist is the knowledge that public intervention in market processes cannot be justified by the simple demonstration that the free market's allocation of resources is likely to fall short of some ideal, textbook solution. It must also be shown that government intervention can be designed in a way that, at the very least, does not make matters worse. In brief, economists must worry about 'government failure', for even a very imperfect market may do a better job of allocation than any conceivable public mechanism. In brief, to paraphrase Churchill on democracy, the market may be the worst mechanism for allocating resources – except for all the others.

In strictly intellectual terms, this approach to the problem of resource allocation is much more satisfactory than one based on seeking out and fixing any and all market failures. But it is also more demanding, since it requires economists to deal in the dirt and grime of designing public policy, which is obviously a more complicated business than was required by earlier 'sufficiency' arguments. Moreover, it may leave a much larger part of the policy problem inherently unanswerable, since it requires a good deal more information about how both market and non-market processes actually work. In some philosophical sense, those who favour intervention may be heartened by the information gaps that make it difficult to choose among policies and to monitor how a chosen policy is doing. If a policy's effects are unknowable, they may not be all bad. Moreover, in an interventionist era, the decision not to intervene is also a policy and is, therefore, subject to the same difficulties of information as other policies. But a more natural reaction for economists is to put the burden of proof on those who propose action. It should not be surprising then that most economists remain skeptical about almost all government interventions.

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[17] By now there is a voluminour literature on the problems of policy implementation. For a high-quality sample, see Downs 1957, Breton 1974a Borcherding 1977, and Wolf 1979.

In summary, the purpose of the rest of this book is to examine the economist's reasons for believing in the efficiency of market processes, to describe the most common varieties of market and non-market failure, and to see which of them might justify the industrial policies currently observed in or proposed for Canada. One conclusion should be stated at the outset. The analysis of intervention requires so much information on the performance of markets and governments alike that very little can be decided *a priori*. Rather, each prospective intervention has to be studied on its own, with appropriate skepticism. Since there may be no clear pattern to the sets of industries that require public attention, what appears to be haphazard, perhaps even random intervention may, in fact, be optimal. Thus, policymakers need not fear a piecemeal approach to the problems of industry (except insofar as they worry about what editorial writers may say). On the contrary, symmetry in intervention is likely to be the 'hobgoblin of little minds'. This is not meant to suggest, of course, that the existing hodgepodge of interventions is the correct hodgepodge.[18]

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[18] There can be no doubt that the current mix of policies is a hodgepodge. This situation is more or less inevitable. As Bliss puts it: 'The likelihood is that policies will continue to be developed, as they were in the past, by real politicians dealing with real problems on a day-to-day basis. In the realm of industrial policy as in so many areas of our national life, we have to learn to live with diversity, *ad hocery*, and a certain amount of disorder' (1982, 43).

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The virtues of the market, the vagaries of politics

That laymen have strong prejudices about economists – their willingness to pull assumptions out of thin air, their propensity to disagree, and their inability to predict the future – is well known. What is perhaps less well known is that economists have equally strong, though, of course, much more justifiable, prejudices about laypeople. A common one is that the general populace sees the market not as an efficient mechanism for allocating resources, but as an artifice by which the existing power structure maintains its dominance. The popular impression of government, on the other hand, often seems to be that it can respond effectively, discriminatingly, and virtually immediately, wherever and whenever intervention is required (see Wolf 1979).[1]

This is not a happy state of affairs for economists, since it means they have failed in their role as educators. In fact, one recent observer argues that unless economists redouble their efforts to persuade citizens of the market's adeptness and government's frequent awkwardness at solving problems of allocation, a dismal fate awaits democratic society. (Courchene 1980).

In view of the apparently widespread anti-market, pro-interventionist sentiment, this chapter tries to rehabilitate the lay view of the market and at the same time to cast doubt on the efficacy of modern governments.[2] The treatment is not neutral; it ignores both the vagaries of the market and the virtues of government. This non-neutrality can be justified in at least two ways, however. The first is that so much of the opposite view comes through the media of mass communication that it does not lack publicity. Second, most of the rest of this study is devoted to a discussion of how markets can fail, so a single chapter on their alleged virtues is not excessive.[3]

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[1] This conclusion could certainly be drawn from a steady exposure to radio, television, and the popular press, which usually react to any and all perceived injustices by calling for public intervention. (On the other hand, John Kenneth Galbraith [1981b] has suggested that only the opinions of the rich and already powerful are aired in these media.) In part, of course, the pattern of bias can be explained quite simply. The idea that complicated social problems should be left to the apparently anarchical operations of the market is a sophisticated and perhaps not very persuasive one for a population schooled since childhood in the belief that planning is the key to efficient household management. However, analogies between society and the household always break down under the least scrutiny.

THE VIRTUES OF THE MARKET

Since Adam Smith's day – indeed, even before it – economists have found many reasons to prefer the market to other mechanisms for allocating resources.

Efficiency and the market

The most important of these reasons is the market's ability, under certain conditions that may or may not be approximated in what economists call the real world, to bring about an efficient allocation of scarce resources among the many competing demands for them in a modern society.

That statement may require some explanation. So far as the economist is concerned, an 'efficient' allocation of resources is one in which it is not possible to make one person better off without someone else's becoming worse off. If one person can be made better off without any reduction in the well-being of others, the result is a free gain, which, according to one innocuous definition, is a social improvement.[4]

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[2] The 're' in 'rehabilitate' may be inappropriate. The golden age of *laissez-faire* may never have existed, however fondly modern conservatives hearken back to it (see Hughes 1977; Aitken 1967).

[3] The non-specialist reader may find a word on sources useful. An analysis of the virtues of the market can be found in any good introductory economics textbook (for instance, Hines 1977, or Lipsey et al. 1982). The discussion of the failings of government follows Wolf 1979 rather closely; even the non-specialist should find this clearly written treatment of the difficulties of government easily accessible. Other useful references are Downs 1957, Borcherding 1977, and Lindblom 1977.

[4] This definition of a social improvement is associated with the Italian economist and statistician Vilfredo Pareto (1848–1923). Economists refer to 'Pareto improvements'. Note that if the rich get richer and the poor stay poor, this definition classifies the change as a Pareto improvement. By the same token, taking from the rich – even the very rich – and giving to the poor does not usually qualify as a Pareto improvement. For more along these lines, see Chapter 3.

A second definition: economists consider resources 'scarce' when there are more uses for them than can be managed with the supply at hand. Of course, if resources are not scarce, then free gains are available, and at least one person can be made better off without anyone else's suffering for it. In a world in which no resource was scarce, everyone would have whatever he or she wanted, and efficiency would not be a problem. In the real world, however, scarcity exists and is likely to be acute for some time to come. The advantage of the market is that, under conditions to be eleborated shortly, it can be relied on to bring about all the social improvements possible in a world of scarce resources.

Exactly how the market does this is a question best approached indirectly. To achieve an efficient allocation, scarce resources must not be squandered in the production of goods that are less in demand than other goods.[5] A market system in which producers are driven by a profit motive virtually guarantees that such squandering will not occur – using scarce and, therefore, expensive resources to produce goods for which there is no great demand is too obviously the perfect prescription for bankruptcy. In a profit-oriented system, private firms wish to produce (or produce *first*) those goods for which the demand is greatest and the cost least, and this is just as it should be if society is to use its resources efficiently.

The demand for a product is indicated by what it fetches on the market. The less the demand, the less it fetches, and the less chance, therefore, that the producing firm will turn a profit. Since the demand-price relationship holds for all industries, the costs of production a firm faces are an index of how useful the resources it wants are elsewhere in the economy. A large difference between price and cost means (at least) three things: (1) output should be expanded; (2) increased production would create a profit; and (3) output is, therefore, likely to expand.

Of course, as the firm produces more and more of the good or service, the demand for it normally declines. This decrease is reflected in a fall in what extra units of output can fetch on the market. Also, the cost of production may rise as output grows and resources are drawn from increasingly critical uses elsewhere. Both changes can close the gap between price and cost. When what people are willing to pay for an extra unit of a good just equals the cost of producing it, then: (1) output should not be expanded; (2) further expansion of output would cause financial losses; and (3) output will, therefore, not be expanded.

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[5] The expression 'less in demand' is used instead of 'less needed', which might seem more apposite. In the economic world, it is money, not virtue or necessity, that talks. How people's bank accounts can be made proportional to their virtue or their necessity is addressed in Chapter 3. The crucial point here is that it is hard to see how industrial policy can play any useful role in such redistributions.

Thus, in a market system, firms that make less profit than they could are producing output that either costs *less* than it brings in in revenue (so they should be producing more) or costs *more* than it brings in in revenue (so they should cut back on output). In either situation, the market offers relief. So long as entry into the industry in question is relatively free, other firms can be expected to try to take advantage of any unexploited profitable output. And if production is excessive, firms that have exceeded the margin of profitable production have difficulty obtaining capital and may go out of business altogether.

In sum, given both the scarcity of resources available to an economy and the demands of its citizens and trading partners, private markets can be expected to produce an efficient allocation of resources across the various industries in an economy.

The optimal industrial structure

Thinking along these lines is the source of the skepticism with which economists customarily greet assertions that an economy's industrial structure is inappropriate.[6] If some industries have over-expanded, they ask, why haven't the inefficient firms gone out of business? And if there are unexploited margins of profitable production in other industries, where are they and why haven't they been exploited? People who are interested in earning profits do not usually keep losing propositions going. Nor do they hold back when the margin between price and cost promises to be large.

The economists' usual presumption is that if structural inefficiencies persist, the fault must rest with some artificial impediment to market adjustment: a tariff, for example, or a regulation restraining trade, or a collusive agreement among producers. In the first two examples, government is the clear culprit; in the third, private agents are to blame, although many economists would argue that such agreements do not last without governmental sanction.

Efficiency has several dimensions, of course. Not only must resources be allocated properly across industries; the various resources available to an economy must also be used in the most efficient combinations within any given industry. This requirement means both switching input combinations when switching is profitable and not egregiously wasting resources (the latter is the lay understanding of 'efficiency', which economists refer to as 'X-efficiency'). If an industry is able to produce its output with a lower-cost combination of resources, the resources saved can be used elsewhere to increase society's overall output, again creating the possibility of someone's being made better off without anyone else's becoming worse off. A profit-oriented market system can be expected to see to this side of efficiency. When resources are used in wasteful or inappropriate combinations, money is lost. Profit-oriented firms cannot afford waste of this sort if the capital markets reward the most profitable and if product markets are more or less competitive. Moreover, even if product markets are not competitive but monopolistic, so long as the monopolies try to maximize profits, they will not knowingly waste resources, for wasted resources mean lost profits.

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[6] Though, as will be emphasized later, there are conditions under which even economists doubt the appropriateness of market solutions to the various allocation problems a society faces.

In summary, the virtue of a profit-oriented market system is that it produces those products for which demand is greatest, and it does so in the least expensive manner possible. In this way, national output can be expected to reach its greatest possible value. At that level, no more free gains are possible; the only way to make anyone better off is to take something from someone else, thereby making the latter worse off. Not incidentally to what follows, the industrial structure that emerges from this process – whether it emphasizes resources, manufacturing, imports, or exports – must be efficient, or 'optimal'. Any other structure would involve an inefficient allocation of resources, since free gains would still be available if it were changed.

The market and technological change

A second general argument favouring market processes is essentially empirical. In fact, Richard Nelson (1981) argues that despite the economics literature's formal emphasis on the ability of markets to solve essentially static allocation problems, the 'oral tradition' of most economists emphasizes the dynamic properties of market systems. While Nelson is surely correct in arguing that the dynamic properties of a private market system cannot simply be assumed superior to those of other systems, both critics and advocates of market systems have observed that they seem better able than other systems to introduce and disseminate technological change. Many countries that have adopted the market as their principal mechanism for allocating resources have enjoyed high and rising standards of living, mainly because of a rapid rate of technological change. Admittedly, international comparisons are dangerous; countries generally differ in so many ways that it is difficult, if not impossible, to tell which is the crucial determinant of differences in their economic experience. Still, many observers would argue both that the most rapid advances in technology have come during periods in which the market has played an important role in allocation, and that they have come in those countries in which the influence of the market has been greatest. Obviously, technological change can take place in countries in which the market is not paramount, but it is not certain to, which is sufficient justification for caution in making industrial policy.

The way the world works

A final argument for the market is essentially political. Many of the advantages that allocation offers are really advantages of decentralization. In his famous essay 'The Use of Knowledge in Society', Friedrich Hayek argues that what an economic system needs most in order to work is knowledge, particularly that

> body of very important but unorganized knowledge which cannot possibly be called scientific in the sense of knowledge of general rules: the knowledge of the particular circumstances of time and place. It is with respect to this that practically every individual has some advantage over all others because he possesses unique information of which beneficial use might be made but of which use can be made only if the decisions depending on it are left to him or are made with his active co-operation. (1948,80)

That this specialized knowledge is the key to economic growth is the source of Hayek's argument that centralized planning is bound to fail: those at the centre can never absorb information quickly enough to make use of all there is. What is more, by acting on incomplete information, they are likely to induce severe misallocations. This difficulty is obvious when what is at issue is a comprehensive, economy-wide plan of the Eastern European variety. But it is equally present when the plan is 'just' an industrial strategy. How, for instance, could the federal or any provincial government gather sufficient information to decide which high-technology investments Canada should undertake out of several hundred possibilities?[7] And how can public mechanisms be designed to filter out

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[7] The Science Council of Canada seems to think almost literally nothing of this problem and is not at all hesitant in recommending that Canada get into the manufacture of silicon chips. The logic of its argument for doing so is hardly foolproof, however. In a recent report, it said:

'Although the global semiconductor industry is no longer having trouble keeping up with expanding demand because of current [1981] economic false information and make the most effective use of the sound information that does come through?

The obvious response to Hayek's argument is that plans can be devised to make use of marketlike mechanisms. Thus the chairman of the Science Council of Canada has argued that while governments may have to *initiate* high-technology investments in Canada, the market must be allowed to pass final judgement on them (Smith 1982). Hayek takes a dim view of this possibility (1948, Calculation I and II). Dan Usher (1981a) provides a new twist to Hayek's argument. Usher argues that if the state has final say on the allocation of resources, as it surely would in a planning system or under an industrial strategy, it is bound to grant exceptions to whatever pseudo-market processes have been adopted. But once one exception is granted, exceptions will likely become the rule, and economic agents will soon realize that the best way to ensure a healthy income is to petition the government for special favours. The result will be a complete unravelling of the market mechanism. This situation would obviously involve endemic economic inefficiency. It would also threaten political democracy, for, as Usher sees it, democracy simply is incapable of establishing the distribution of incomes. Naked political conflict over distributive shares must eventually bring a pre-emptive coup, as it were, by one group or another in society.

A paper on industrial policy is not the place for rumination on the future of democracy. Still, before returning to more traditional economic rationales for market allocation, it is worth pausing to consider that an active industrial policy may be inefficient in more than the economic sense of the word. Usher compares the federal government's various regional development agencies to kings tossing coins to the rabble (1981b). Such a policy is bound to corrupt our political life, not just in the sense of encouraging politicians and bureaucrats to be on the take

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conditions, capital in the form of skills and equipment needed to enter the business is growing as rapidly as the sophistication and complexity of the chips themselves.

'Worldwide, the industry is experiencing rapid growth in capacity, leading to intense price competition. There are indications, however, that it is not earning enough profit to finance its phenomenal growth. . . .

'Since the demise of Microsystems International Ltd in 1975, no Canadian firm has manufactured a broad line of general purpose chips. A division of opinion exists within the industry as to the need for a manufacturing capability for such chips. Nevertheless, Canadian industry does require access to a domestic custom-chip manufacturing capability' (1982,29).

In other words, this central agency would explicitly override the opinion of people who presumably know the industry best.

(though this may well happen), but also by showing citizens that the road to success runs directly through the parliamentary lobbies.

The argument that markets are better than governments at rolling with the punches is hardly the most sophisticated intellectual property available. The premium on sophistication falls rapidly, however, once one realizes how difficult it is to do better than roll with the punches. Ten years ago an interventionist industrial policy might reasonably have expanded the luxury automobile industry of southern Ontario – on the grounds that the demand for big cars rose with income and incomes were likely to continue rising – and simultaneously shut down the then-uneconomic oil fields of Alberta.[8] Errors in forecasting can be forgiven, but public sector agents face a further difficulty in that, for perfectly understandable reasons, they have a hard time adjusting to changed circumstances. Once made, interventions are difficult to unmake.

In sum, there are at least *prima facie* grounds for supposing that market processes are better than alternative forms of organization at delivering an efficient allocation of resources. It must be emphasized, of course, that what has been said so far is subject to a long list of provisos to be elaborated in subsequent chapters. But it should also be understood that unless its imperfections are severe,[9] the market will move resources, in both the short and long run, to where they bring the greatest returns, and that this is a necessary condition for the attainment of a social optimum.

THE VAGARIES OF GOVERNMENT

The age is such that it is necessary to emphasize that governments – perhaps occasionally, perhaps often – may operate in inefficient ways. That governments may not be efficient (in either the economic or the lay sense of the term) is not a new idea in economics.[10] Neither is it novel in the world at large. Certainly, the business press has always been willing to point out the failings of government. Moreover, cynicism about government in general and politicians in particular has become endemic in recent years. On the other hand, a good argument can be made that this disaffection, though widespread, is not deep. Most people's reaction to the appearance of social difficulties is still to argue that somebody – usually government – ought to do something. The purpose of this section is to argue that, given the difficulty of effective governmental problem-solving, the more appropriate response in many cases of perceived injustice – in the present context, market failure – is for nobody to do anything.[11]

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[8] That the Alberta fields were not shut down probably owes more to the exigencies of federal politics or the luck of federal politicians than to their perspicacity (see Nelles 1980). Faith in the good forture of politicians is a fragile foundation on which to rest an industrial policy.

[9] And even severely imperfect markets may on occasion out-perform allocations by governments.

[10] One of the earliest references in this era is Becker 1958. Wolf 1979 quotes Henry Sidgwick, writing in the latter part of the nineteenth century, to much the same effect.

As already noted, recent years have seen a great flowering of the economic analysis of government behaviour. The import of this literature is that non-market failure occurs for one of two general reasons (see Wolf 1979). First, government may not be interested in attaining an optimal allocation of resources as economists envision it. Or, even if government would like to do what economists consider good, it can be undone by its inherent administrative awkwardness.

Internalities

Too often economics has assumed that those who govern are virtually economist-kings, whose job is to see that the only public interventions in market processes are those whose social benefits clearly exceed their social costs. Too many times, economists have been content to observe market failure, recommend public intervention, and then turn their attention elsewhere on the assumption that government will apply whatever remedies their textbooks prescribe. To anyone outside economics, of course, this idea is ludicrous.

Politicians have their own goals – 'internalities' as Wolf (1979) calls them[12] – for the economic and political systems, which may or may not be consistent with the social good as economists interpret it. Quite the contrary, elected officials may easily find it to their political advantage to undertake interventions that inflict significant net losses on society, so long as sizeable benefits are created for a relatively small – but presumably grateful – constituency. What allows them to get away with this ploy is the diffusion of the costs of the policy; those who lose as a result of it do not find it worthwhile to complain very energetically.[13]

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[11] Which is not to deny that many government actions may bring considerable benefit at (relatively) insubstantial cost.

[12] The word play here is on 'externalities', which are discussed in Chapter 4.

[13] In fairness to politicans, they may be quite ready to do the right thing but not know what it is. If the costs of a wrong policy are politically insignificant because widely spread, politicians may hear more advice for it than against it because it simply may not pay potential losers to lobby government.

Such manoeuvres are attractive to politicians because re-election requires not the unanimous support of the population but the votes of 40 to 45 per cent of its politically active members. Moreover, groups that cannot offer large numbers of voters can often deliver the means by which voters can be won over. Politicians may thus attempt to form *ad hoc* pluralities by focusing the benefits of a policy at readily identifiable groups, even, to repeat, if its overall costs are greater than its total benefits. If widely practised, this brand of political calculus will turn the political system away from policies that promote economic efficiency towards those that maximize incumbent politicians' chances of re-election.

Much casual evidence suggests that the modern world does work this way. The business section of any good daily newspaper usually includes at least one report on an attempt by some special interest group to extract preferential treatment from one or more governments. For example, a more or less random sampling of two Canadian dailies reveals that:

- The Automotive Parts Manufacturers' Association of Canada wants limits on the importation of foreign cars, as well as an agreement with 'all foreign vehicle producers to require them over a limited period of time to achieve a Canadian content level of 85%' (*Toronto Globe and Mail*, 23 Mar. 1982).

- The chairman of the Grocery Products Manufacturers of Canada supports the goal of 'greater self-reliance in food' and wants to help the government 'co-ordinate a more efficient agricultural sector, increased value-added food processing, and an aggressive world marketing approach' (*Toronto Globe and Mail*, 1 Apr. 1982).

- The Shoe Manufacturers' Association and the United Food and Commerical Workers' Union want a five-year quota that would limit the importation of shoes to half the domestic market (*Toronto Globe and Mail*, 16 June 1982).

- The Quebec Federation of Labour and the Quebec wing of the United Steelworkers of America are opposed to any plan to split up or sell Sidbec, the provincially owned steel company (*Toronto Globe and Mail*, June 1982).

- The Canadian Advanced Technology Association, an association of high-technology companies, wants the federal government to set a target for research and development expenditure of 3 per cent of GNP by the end of the decade (*Toronto Globe and Mail*, 3 June 1982).

- The SNC engineering group in Montreal would like to see hiring rules for Canadian megaprojects that would give preference to Canadian engineers (*Le Devoir*, 12 Nov. 1980).

- A committee headed by the vice-president of La Group Vidéotron, a Quebec-based communications equipment producer, recommends that the provincial government increase its support for research and development in communications technology (*Le Devoir*, 14 June 1981).

- The publisher of *Saturday Night* wants the postal subsidy to Canadian magazines continued (*Toronto Globe and Mail*, 20 Sept. 1980).

- Ontario wine-makers favour continued discriminatory pricing of imported wines and are pressing the provincial government to take further measures to increase domestic producers' share of the Ontario market (*Toronto Globe and Mail*, 13 Mar. 1982).

- The Canadian Recording Industry Association would like to see a 100 per cent capital cost allowance for money invested in producing Canadian recordings (*Toronto Globe and Mail*, 3 June 1981).

- The Ontario Cattleman's Action Group favours establishment of a federal beef marketing board with price-setting powers (*Toronto Globe and Mail*, 17 June 1981).

- The president of the Canadian Association of Recycling Industries wants the federal government to adopt a national recycling policy, including tax incentives to promote recycling (*Toronto Globe and Mail*, 15 June 1981).

The list could be lengthened almost endlessly, but surely the point is now taken. While each of the proposed policy changes might be in the public interest, the hypothesis would be more believable if the proposals had originated with groups less likely to benefit from the changes. Moreover, economic theory suggests that most of them would, in fact, cause net losses to society because the victims of such interventions typically lose more than the beneficiaries gain. Quotas on the importation of shoes, for instance, cause an aggregate loss to consumers greater than the benefits producers receive. Producers benefit by virtue of the higher price they receive for each pair of shoes they sell. Consumers lose by this amount; they also lose by not being able to buy as many pairs of shoes as they would have bought at the old price. Economists call this a 'deadweight loss', that is, a loss by one group that is not offset in the social calculus by a gain by any other group.

Of course, if the losses from the proposed policies really would exceed their benefits, theoretically the potential losers – consumers and/or taxpayers, in most instances – could band together and persuade the potential beneficiaries not to lobby for the interventions. But since the beneficiaries are generally few in number while there may be millions of potential victims, such persuasion is likely to be difficult. In one of the stories just cited, the *Toronto Globe and Mail* reported the president of the Ontario Wine Importers' Association's asking plaintively, 'Why does the consumer sit back and not object?' Most economists would reply, 'Because it doesn't pay to.' As a result, the political system can be expected to aim systematically at what economists consider inappropriate goals.

'Strong thumbs, no fingers'

Even if those 'in charge' of government do aim at economic efficiency, they may have difficulty inducing the governmental apparatus to act on their desires. One reason is a variation of the 'internalities' theme: public employees, over whom politicians exert what is bound to be incomplete control, may have their own goals for government. Thus, the literature of economics has often included the argument that the art of governing essentially consists of protracted deal-making between politicians with specific political goals and public officials who, in exchange for various forms of largesse – say greater security of employment, higher budgets, or larger staffs – help the politicians attain these goals (see, for instance Niskanen 1971). The existence of such 'internalities' is unlikely to be consistent with even the lay definition of efficiency.[14]

Quite apart from the problem of 'internalities', governments may have difficulty achieving their desired ends. Governments are authority systems; that is, they run according to rules and directives. In the delightful phrase of Charles Lindblom (1977), authority systems have 'strong thumbs, but no fingers'. Their ability to develop sophisticated plans and to make rapid, discriminating responses to changing circumstances is limited, so it is probably best not to demand anything very elaborate of them. Distributing pensions is something government is likely to do well; designing an industrial structure is not.

14 The crucial importance of officials and their goals has also been recognized in the literature of political science. Richard Schultz (1980), for instance, argues that it is mainly the influence of federal-provincial bureaucracies that gives life – such as it is – to intergovernmental relations in Canada, while Hugh Heclo (1974) suggests that both present and former bureaucrats (who so often staff or chair royal commissions) have had inordinate influence on the formation of policy in the United Kingdom and Sweden in recent decades.

Of course, the 'strong thumbs, no fingers' tag can equally well be applied to private bureaucracies, which often have difficulty devising flexible directives for their operations. They do, however, have at least two advantages over governments in this regard. First, the bottom line at which they aim is generally much simpler. The goal of making money may not be an easy one to reach, but charting progress towards it is a relatively straightforward matter in comparison with assessing progress towards the ideal education system or redistribution policy. In case after case, the greatest difficulty the public sector faces is discovering how it is doing. Public output is notoriously difficult to measure, and the verdicts presented periodically by the voters are surely not much help. Modern Canadian governments provide 20 to 25 per cent of the gross national product, transfer the rights to another 20 per cent of it, and regulate the production of at least 10 per cent more. Earning the approval of a plurality of voters every several years is not much help in deciding which policies have been appropriate. It is rather as if the only feedback Eaton's, the Bay, and Simpsons received were a Gallup poll every three years. In contrast, private agencies can generally tell how divisions are doing by simply looking at their revenue and cost data.

The second crucial difference between private and public agents presented with problems is that the public agent generally does not go out of business if he or she is inept. By contrast, the private agent may.[15] Thus, even if private agents attack a problem randomly, the one that comes closest to solving it is likely to prosper, while less appropriate respondents fall by the wayside (see Nelson and Winter 1974). In most conceivable cases, this is not likely to be true of public agents.

In brief then, public agents usually have to depend on authority systems; they often are asked to produce output that is not easily measurable; they seldom get unambiguous information on how they are doing in particular areas; and they have a hard time running from their mistakes. Thus, despite the popular prejudice, there is every reason to expect that government failure is as serious as market failure.

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[15] 'May' because, increasingly. the 'responsible' government has adopted an industrial policy that bails out firms that do badly.

3
Market mega-failure

If the discussion of industrial policy that follows is to interest those who are responsible for real-world decision-making, the rosy view of market processes presented so far must be amended substantially. This is not to say that the policy recommendations implicit in a strong belief in the market have to be modified; as already suggested, even a very imperfect market may be more attractive than all other alternatives. But the damage likely from market failure must be weighed carefully before pro-market policies can be adopted.

At the outset, it is useful to distinguish two orders of market failure. The first causes only a marginally inappropriate allocation of resources. Problems in particular markets may result in some industries' being slightly more developed than they should be, with others correspondingly underdeveloped. By tinkering at the margins of these industries, governments may be able to effect an efficient reallocation of resources, but in general no major intervention is required. A second order of market failure presents a much more difficult policy problem. It is at least possible that systematic biases in all market processes can cause a gross misallocation of resources. This higher order of market failure, referred to here as market mega-failure, calls into question the economist's fundamental assumption that since markets get allocation more or less right, governments need only correct what are really rather minor inefficiencies. A belief that mega-failure is usual could easily warrant much more elaborate interventions in market processes than the first category of market failure could and might even justify the displacement of the market as the principal mechanism for allocating resources.

Three possible mega-failures are examined here. In each case, there are two arguments: (1) that the failure in question may not be empirically important; and (2) that even if it is, industrial policy is unlikely to be an effective remedy.[1]

INDUSTRIAL POLICY AND THE DISTRIBUTION OF INCOME

As we saw in Chapter 1, the market commends itself as a means for allocating resources mainly because it can be counted on to produce *what is in demand*. The phrase is worth noting carefully. An alternative but incorrect wording is that markets produce what is needed. The latter statement is not true. Market systems answer only those needs that are backed up by dollars – 'them that has gets', be their assets cash, bonds, property, or skills. Thus, it is possible (many would argue it is normal) for markets to answer the frivolous demands of the rich well before many of the poorer members of society have secured the necessities of life.

Economists usually point out that a society that is not content with the distribution of wealth produced by private processes can choose from a whole spectrum of policies to effect involuntary redistribution.[2] Before considering how industrial policy might or might not fit into such a spectrum, however, it is well to reflect on what the market does achieve even in the face of an undesirable distribution of resources. Given any initial distribution of wealth and no market failure, a system of markets will raise the overall level of well-being. Since people do not enter into trades unless they profit by them, market processes help even the poorest members of a society to make the best of what admittedly may be a very bad deal. They still may not be well off, but their situation will presumably be better than it would have been without any exchange or production having taken place. Surely this is no small achievement. Moreover, it suggests, if the existing distribution of wealth is deemed undesirable, not that market processes should be abandoned for allocating resources, but that wealth should be redistributed so that the poorer members of society can have a greater voice in those processes. This is most easily accomplished, of course, by giving the poor money.

Considerable controversy exists within and without the literature of economics about how equal or unequal the distribution of incomes is and

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[1] More time is spent on the second point than the first because, in most instances of mega-failure, resort to empirical argument is difficult; fact is so often in the eye of the beholder that beliefs about the way the world works are likely to be decisive.

[2] The possibility of voluntary redistribution should not be excluded. The rich may give to their poorer compatriots either because they consider it to be in their long-term interest to do so (see Usher 1981a) or, as even economists would concede, because they have other motivations besides self-interest.

TABLE 3
Command over resources in Canada, 1951-69

Income class	Percentage of family units in class	Command over resources (post-government income[a]		Change in command over resources	
		1951	1969	1951–61	1961–69
Lowest	21.7%	5.7%	6.9%	+0.1%	+1.1%
Lower-middle	25.5	15.0	17.8	+3.4	−0.6
Middle	25.5	23.7	25.5	+4.0	−2.2
Upper-middle	22.2	34.7	32.1	−3.0	+0.4
Highest	5.0	20.9	17.9	−4.5	+1.5

SOURCE: Gillespie 1980, table 3.
[a] As a percentage of GNP.

about what should be done to reduce the observed inequality.[3] Many simple indicators suggest that income inequality has been increasing in recent years. On the other hand, when researchers take into account the effects of demographic change, distribution now appears to be less skewed than in past decades. Similarly, there is considerable disagreement about the effects of government programs on observed distribution. W. Irwin Gillespie (1980) argues that the 'post-government' distribution of income is significantly less unequal than the 'pre-government' distribution, though perhaps not to the degree suggested by modern political rhetoric. On the other hand, he presents evidence suggesting that 'post-government' distribution has not changed much in recent decades, despite the introduction of many apparently redistributive programs. Gillespie's results are illustrated in Table 3. The last two columns show that although the command over resources exercised by the highest income group declined between 1951 and 1969, during the final eight years of this period, it actually increased by 1.5 per cent of GNP. On the other hand, the share of the lowest income group increased during both subperiods, although significantly more during the second than during the first. While the change in the 'post-government' distribution of incomes may not be as great as many people may have imagined, Gillespie's other results suggest that net public redistribution increased from 3.1 per cent of GNP in 1951 to 5.4 per cent in 1961 and 6.4 per cent in 1969 (Gillespie 1980, table 2). If the public sector does more redistribution yet the final distribution of command over resources shows no dramatic change, the implication is that the original distribution of incomes has become less equal.

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[3] Governments have to weigh the benefits of redistribution against any reduction in the total amount of output available for redistribution when redistribution cuts too deeply (see, for instance, Fair 1971). It is also possible that the benefits of redistribution accrue not to its immediate recipients, who may well prefer a system in which those who strike it rich are permitted to keep their earnings, but to the taxpayer who finances it and enjoys the psychological benefits it provides. Others argue that society must not only increase the equality of opportunity but reduce the inequality of actual incomes (see, for instance, Wiles 1982).

Even if further redistribution is indicated, industrial policies are not likely to achieve it. The essential problem is that they are at best a scattershot technique for raising the incomes of the less advantaged. For instance, although many farmers have relatively low incomes, an industrial policy that, like many existing programs, gives special treatment to all farmers also benefits some very high-income Canadians.[4] Small businesses are another favourite target of industrial policymakers; most are at the bottom of the ladder in a comparison of all corporate incomes, yet many of their owners appear quite well off when their personal incomes are compared with all personal incomes.

A related difficulty is that industrial policies can have quite complicated effects on the distribution of incomes. For instance, any agricultural policy that raises prices at the farm gate undoubtedly has a regressive effect on incomes, since people with lower incomes spend a higher proportion of them on food than do the better off. Similarly, general aid to the fishing industry may ultimately redound to the benefit of the stockholders of major fishing firms. The clearest message to emerge from economic analysis of the corporate income tax – which is simply negative industrial assistance – is that it is hard to say who ultimately pays the tax: consumers, shareholders, workers, or entrepreneurs. It is not at all certain, therefore, that the ultimate beneficiaries of industrial assistance will be those at whom it is supposed to be aimed.

In summary, if income distribution is found wanting, it probably is best to attack the problem directly, rather than to attempt what is bound to be a haphazard redistribution by means of industrial policy. If the government feels strongly about raising low incomes, it should aim assistance at the people who need it most. Unfortunately, they are not always distinguishable by their choice of occupation or industry.[5]

[4] The Economic Council of Canada judges that 'most full-time farmers enjoy an adequate income and have accumulated substantial wealth from the capital appreciation of their lands, buildings and quotas' (1981, 54).

[5] Another type of industrial policy that is often justified mainly as an instrument of income redistribution is regional development policy, which has assumed major importance in Canada in recent decades. Many of the same sort of

INDUSTRIAL POLICY AND COMPETITION POLICY

Chapter 2 suggested that if a market system is to produce an optimal allocation of resources, it must be one that firms can enter with relative ease. Free entry enables newcomers to increase output and compete away monopoly profits in industries in which production has been artificially restricted.

Ease of entry should be of particular interest to Canadian policy-makers, who preside over a relatively small economy that suffers from high levels of corporate concentration compared with its larger neighbours. Of course, high levels of domestic concentration need not pose a significant problem, provided the domestic market is open to competition from abroad: no matter how much local producers would like to practise collusion, relatively low tariffs and transportation costs severely limit their ability to raise prices and either collect monopoly profits or squander resources in inefficient production. Canadian markets are, however, generally not open to foreign competition. For most of our history, they have been protected by a substantial tariff. More recently, an increasingly elaborate set of non-tariff barriers has provided the bulk of protection. Many Canadian economists have attributed the much-documented inefficiencies of Canadian manufacturing to the fact that many of our manufacturing industries are protected oligopolies (see, for instance, Eastman and Stykolt 1967). Heavily insulated from the world market, Canadian manufacturers have been free to pursue inefficiency without fear of failure.

On the other hand, some observers believe that the high level of industrial concentration in Canada is merely a particularly severe case of an affliction that is endemic in the Western world. The argument is commonplace these days that the industrial economies are rife with monopoly and at best, therefore, provide only a caricature of the textbook version of competition.

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objections can be raised against it. Despite popular impressions, some Albertans are poor and some Maritimers rich. Thus, regional public policies do not assist some people they are meant to assist and do assist others who should not be assisted. Second, as has often been argued (Courchene 1970, for instance), assistance to low-income regions may discourage emigration from them to areas where the return to labour and capital is higher. Since this question has been the subject of much controversy in the economics literature in recent years, it is not elaborated here. Suffice to say that it is hard to ground a case for regional development policies in received economic theory (though see Boadway and Flatters 1981) and harder still to justify present policies.

Concern for the dangers of monopoly is often overdone, however. In fact, what has been termed workable competition (see Markham 1950) often may not require large numbers of competitors. Most of the virtues of textbook competition can be achieved with only a handful of competitors in each industry in the economy, so long as the threat from *potential* competitors inhibits monopolistic behaviour. Moreover, even if all potential competitors are actually present in the market – a situation that seems unlikely in this day of conglomerate enterprise – more or less efficient competition may be the ultimate outcome. Although an oligopoly gives producers substantial incentives to restrict output and raise prices, à la OPEC, successful collusion, in turn, creates significant incentives for cheating on such agreements: the low-price seller in a high-price market can count on doing a brisk business. Thus, a demonstration that ownership in many Canadian industries is highly concentrated is not a proof that monopoly is rampant in the economy. Moreover, most studies of the misallocation caused by monopoly put its cost at less than 1 per cent of GNP (see Green 1980). Although this is not a number to be dismissed lightly, neither is it likely to cheer the conspiracy theorists much.

Of course, even if monopoly were commonplace and caused considerable misallocation, industry might not be run better under public direction. Private monopoly may well provide a closer approximation of the allocative ideal than would either public ownership or public regulation. Again, the diagnosis of market failure does not necessarily lead to the prescription of intervention.

Finally, supposing monopoly is judged a significant problem, a frontal assault seems a more appropriate remedy than recourse to industrial policy, which even in the best of circumstances is bound to be an indirect measure. The most direct remedy would presumably be enforcement of a strict competition policy, so that legal or administrative sanctions would greet anticompetitive behaviour.[6] The objection often is raised that antitrust policy is an intellectual relic from the last century, one that is now ineffective or even perverse, since technological progress requires large-scale operations and/or surety of demand (see Galbraith 1967). In Canada's case, however, the jury is still out on an aggressive competition policy, since for all intents and purposes the country has never had one (see Brecher 1982). Moreover, it can easily be argued that in the increasingly liberalized trading environment of the post–Second World War period, competition, even among very large firms, is more possible – actually more likely – than ever before, so a judicious blend of commercial

[6] And possibly also anticompetitive structure, though this is obviously a more difficult question (see Green 1980).

and competition policies might produce historically unprecedented levels of competition.[7]

Industrial policy is not only unlikely to be an effective remedy for the ills caused by monopoly; it may actually make matters worse. Many would-be industrial strategists argue both for increased 'rationalization' of Canadian manufacturing – meaning government-sponsored concentration of ownership – and for increased barriers to trade, mainly of the Buy-Canadian variety. The inevitable effect of such policies would be to create a series of protected monopolies. How protected *monopolies* can be expected to perform well when there is widespread agreement, even among proponents of industrial strategy, that protected *oligopolies* are the source of much of our notorious inefficiency in manufacturing (see Lazar 1981; Britton and Gilmour 1978) is a paradox unlikely to be explained soon.

In summary, monopoly may not be the problem it often is alleged to be. And if it *is* a serious problem, industrial policy is probably not the best solution.

INDUSTRIAL POLICY AND MAXIMIZING BEHAVIOUR

Another argument using market mega-failure is based on the proposition that most human actions – even those in the economic realm – are the result not of the maximizing behaviour described in Chapter 2, but of more-or-less random or even altruistic behaviour. This hypothesis creates significant philosophical problems when applied to demand. If people are not sure why they demand goods and services and may randomly or even intentionally demand things hurtful to them, then in what sense is the allocation of resources that best answers these demands optimal?[8] Such profound questions are obviously not going to be answered here.

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[7] Many proponents of an active industrial policy argue, on the contrary, that Canadian commercial policy should be more, not less protectionist (see Chapter 5).

[8] John Kenneth Galbraith (1958, 1967) has argued that consumer preferences are not random but perverse, in that they are consciously manipulated by large corporations, which in aggregate spend billions of dollars a year on advertising. Three comments seem appropriate. First, advertising, like pornography, is something that always affects other people: few of those who most worry about it ever admit to being influenced by it. Second, consumer preferences exist, whether induced or not, and it requires a significant leap in logic to argue that public policy should discourage their satisfaction. Finally, the relative deprivation of the public sector that Galbraith saw as the principal harmful effect of advertising-mania has been made up in recent years (some would say in spades).

If demands are assumed to mean something, however, even purely random behaviour can suffice to ensure an optimal supply. As long as firms that get their outputs 'right' prosper and those that do not become defunct, consumers' demands will be satisfied in descending order of their strength, as optimality requires.[9] In this regard, of course, it should be noted that the thrust of much recent industrial policymaking has been to prevent the market from having its way with firms that make inappropriate decisions about investment and output. While it may be true that the recent difficulties of Chrysler, Massey-Ferguson, Dome Petroleum, and similar firms cannot be laid at the door of management, the knowledge that the government stands ready to bail out large firms that lose money is likely, in a longer run than is spanned by this or that year's recession, to induce unhealthy changes in the behaviour of such firms' managements (see Davenport, forthcoming).

A final difficulty with the argument that people do not maximize rests in the claim by many of capitalism's most ardent critics that its greatest fault is to place too high a premium on self-interest – or greed, as it is usually termed.[10] If capitalism perverts human beings' essential nature, as alleged, it may well inflict grievous long-run costs on them, but it is hard to argue simultaneously that the switchover to a system of allocation based on the human animal's inherent altruism would bring no reduction in economic efficiency.

SUMMARY

It has been argued in this chapter that what are often claimed to be incapacitating deficiencies of market systems may well be exaggerated both in their incidence and in their effects. Moreover, even when such market failures are too serious to be ignored, industrial policy is not likely to be the appropriate remedy.

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[9] In the biological world, the survival of the fittest governs evolution, presumably even if the fit do not actually plan to be the survivors (see Dawkins 1976). Life in the business world may be much the same. This is a possible interpretation – though perhaps not the authors' own – of Nelson and Winter 1974.

[10] For a delightful anecdote about how the official position on profits of the Saskatchewan New Democratic Party changed in the early 1940s after the party discovered it was losing support among obviously profit-oriented small businessmen and farmers, see Lewis 1981.

4
Public goods and externalities

Chapter 2 argued that the pursuit of self-interest by firms and individuals would lead to an optimal equilibrium in which the extra benefit from putting more resources into any of the many activities that go on in society would just equal the cost of these resources. In other words, firms' profit-maximizing and individuals' utility-maximizing would guarantee both that no resources would be wasted in unwanted activity and that no margins of socially useful activity would remain unexploited. Individuals would not purchase goods that cost more than they were worth, while firms would produce all goods that could be sold for more than they cost to produce. Thus, private action would lead to a social optimum: no one could be made better off without someone else's being made worse off.

An obvious difficulty with this argument is that some of the activities that go on in society involve significant third-party effects; in other words, the benefits or costs of the activity may not be borne exclusively by producers and consumers. People who are not directly involved may be affected, so the first two parties may strike a bargain that leads to a socially inefficient level of output. Either the benefits they enjoy are procured at too great a cost when all costs, including those external to the bargainers, are counted, or margins of beneficial activity remain unexploited once the external benefits are taken into account.

Without public intervention, self-interested agents will consider only their own *private* benefits and costs. Where third-party effects are important, therefore, society may wish to induce the relevant actors to alter their behaviour so as to produce more of the goods and services that create external benefits and fewer of those that impose external costs. In general, a government interested in efficiency should try to arrange matters so that the *social* benefits from expanded production are just equal to the *social* costs it imposes.

Thus, the existence of external benefits and costs clearly creates a potential role for government in improving the allocation of resources. Nevertheless the possibility of government failure cannot be dismissed. An optimal allocation requires not merely that more (or less) of those goods that create external benefits (or costs) be produced, but that production be expanded (or contracted) until the social benefit from the extra unit of output just equals its social cost. Achieving this balance is often a tricky business;[1] unfortunately, it is also crucial. In economics, as in other areas of life, too much of a good thing can be worse than too little. For example, the third-party benefit that education is often thought to confer probably does justify public support for schools and universities, but this justification does not mean that any and all expenditure on education is warranted. Deciding on the right amount of support is very difficult, perhaps impossible. Governments may thus decide that, with perfection unattainable, an admittedly imperfect *status quo* is the best possible outcome.[2]

PUBLIC GOODS AND EXTERNALITIES

Economists customarily distinguish between two general types of third-party effects: cases of public goods and of externalities. A private good – such as a hamburger – is a good that can be consumed only by a single individual. A public good, on the other hand, is one that is consumed by all members of a community if it is consumed by one. The classic example is a lighthouse: *A*'s taking his bearings from the local lighthouse in no way prevents *B* from being guided by it as well. In some respects this phenomenon is useful: widespread benefits can be achieved at minimal cost. But it can also present difficulties. In particular, it leads to the infamous free-rider problem. If people who do not help to pay for the lighthouse cannot be prevented from using it,[3] market processes may leave light-

[1] So is assuring that the effort to do so consumes fewer resources than it saves.

[2] The market is not entirely helpless in the face of third-party effects. Third parties try, by financial or other inducements, to persuade first and second parties to modify their behaviour (see Coase 1960). This persuasion is easier when the third parties can organize without much difficulty; hence the economic rationale for the class-action suit.

[3] This is a crucial catch. A's consumption of a movie generally does not interfere with B's, yet people who do not pay an entrance fee are regularly excluded from movie theatres. Society has obviously decided it is preferable, in allocating resources to entertainment, that people reveal their preferences for different movies by paying such fees, rather than have a public agency estimate the demand for movies and let people in for free (see Samuelson 1972). For a suggestion on having a movie-type system for broadcasting, see Goldstein 1982.

house construction significantly under-funded, even though the benefits of further construction might greatly exceed its costs. It may, therefore, fall to the state to estimate the overall benefits lighthouses would provide and to use tax revenues to build enough so that the cost of one more just equals the benefits it confers. Making that estimate is not easy, however. It is the nature of the case that no one wishes to reveal his or her preference for the public good for fear that those who benefit from it will be required to finance it.[4]

Between the purely public good, which all consume at once, and the purely private good, which is consumed by one person at a time, lie goods that create externalities; that is, they confer benefits or impose costs on people who are not the principal consumers of the good. Sometimes the external benefit is the same sort as the principal benefit – *A*'s floodlight keeps mischief-makers out of *B*'s yard, too. Sometimes it is different – *A*'s keeping an apiary makes *B*'s garden grow. External costs, on the other hand, are generally different from the benefits whose pursuit creates them. The most common example of such a negative externality is pollution, which is a byproduct of (usually quite useful) production or consumption elsewhere in the society.

Great care has to be taken in distinguishing between principal and external benefits. If education, for instance, acts mainly to benefit the person being educated, then the external benefit is close or equal to zero. That an educated person may provide services to others – a future employer, for instance – does not mean an externality has been created. If he or she will be fully compensated for the service provided, then the externality has been internalized; the student will seek to invest in the socially optimal amount of education. On the other hand, if education confers benefits for which the student cannot expect to be compensated, then he or she may invest in less than the socially optimal amount of education.

Thus if the market fails to provide the optimal amount of goods that create externalities, government may have a role to play. But here again one must stress the difficulty of supplying optimal public intervention. It is not easy to obtain the information required to levy the appropriate tax or to provide the optimal amount of subsidy or regulation. Moreover, just any intervention will not do. At some point, the cost of preventing pollution is greater than the damage the pollution does. So if intervention is to improve matters, it must be relatively sophisticated. Unfortunately, although governments often aspire to sophistication, it is not always clear that they attain it.

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[4] For skepticism about the practical importance of the free-rider problem, see Johansen 1978. For new but costly methods of inducing preference revelation, see Boadway 1979 (chap. 6).

RESEARCH AND DEVELOPMENT

The argument has often been made that information has many of the attributes of a public good. One person's, firm's, or agency's possessing given information does not prevent others from using it (though multiple possession can decrease its usefulness to any one party).

Since industrial research and development (R&D) essentially aims at producing useful information, reasoning of this sort has often been used to rationalize public support for it. Without such support, goes the argument, business firms will have no incentive to undertake useful innovation: the benefits of their efforts are too likely to be appropriated by other firms who borrow (or steal) the ideas. At most, innovation can offer only a temporary advantage. This situation need not discourage all innovation: some R&D may profit a firm even if all other firms in the industry share in the new knowledge virtually from the day of discovery. It does suggest, however, that the free-rider effects of this sort may result in substantial under-investment in R&D.

On the other hand, information is unlike the public good of the textbook in that those who do not help finance its development can be prevented from using it in many instances. It may pay firms to go to great lengths to keep the results of their R&D private. Doing so can, of course, be difficult. Rivals can always attempt to hire away a firm's research division. Or successful researchers may try, in effect, to extort most of the profits to which their work has led. Still, even imperfect secrecy may be enough to encourage a significant amount of R&D.[5]

A free market for information may, however, impose such high security costs on firms that the incentive to innovate is greatly reduced. In such circumstances, society may wish to create property rights in information – that is, patents – so that innovators have exclusive rights to their innovations for a time, at least. While this approach presumably increases the incentive to innovate, it does mean that an innovation is monopolized during its first few years, a situation that entails allocative inefficiency. Depending on the life of the patent, however, the trade-off can be a favourable one for society, since without the grant of monopoly, the innovation might have been delayed or never have been made (see Berkowitz and Kotowitz 1982).

[5] Apparently only two employees of the Coca-Cola Company know the formula for its best-selling soft drink (Bernstein 1981).

Of course, it may be that even more favourable trade-offs can be found. For instance, rather than granting full monopolies to all innovators in all industries – whether or not such a generous gift is necessary – providing financial incentives that vary across industries may be possible. Even if the degree of assistance is not varied, financial incentives for innovators may be an effective substitute for a more elaborate and possibly, therefore, more cumbersome system of property rights. Or incentives can be used to complement a system of property rights, as is currently done in most industrialized countries. That many possible mechanisms are available for supporting R&D demonstrates once again the crucial role of analysing implementation in the construction of a public policy.[6]

A Canadian high-tech strategy

Many observers of Canadian industry have argued that its current rate of innovation is deficient in comparison with other countries', and that greater encouragement must, therefore, be given to Canadian innovators (see, for instance, Britton and Gilmour 1978; Shepherd 1980; Science Council of Canada 1982). In supporting this recommendation, however, few commentators have placed great emphasis on market failure of the sort just described as a justification for public intervention. Rather, they have generally pointed to the long-term usefulness of innovation, to the desirability of Canada's competing internationally in high-technology industries, and to the allegedly poor record of Canadian innovators. All three arguments need to be related to the economist's notion of market failure.

The usefulness of R&D

Two general comments on the usefulness of R&D seem appropriate. First, although much R&D does lead to innovations that improve the standard of living, the links by which this connection is achieved are not always obvious. Moreover, as might be expected with a good that possesses at least some of the attributes of a public good, it is not necessarily the standard of living of the R&D-performing country that is improved most. The United Kingdom and the United States, the two countries that consistently scored highest among the industrialized countries during the post-war years on the share of GNP devoted to R&D expenditures, consistently scored lower during the same period on the growth rate of industrial productivity (Nelson 1980). Of course, this comparison is complicated by the fact that R&D for projects related to defence accounted for a much larger proportion of overall R&D in these two countries than in most others.[7] Yet even when this factor is taken into account, the relationship between R&D efforts and the growth rates of industrial productivity across countries cannot be considered robust.[8]

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[6] While comparing their likely effects, even in such a sketchy way, illustrates the difficulty of such analysis.

The second point is that an activity does not deserve public assistance simply because it is useful. Unless it produces external benefits or costs, the market can be expected to provide it in optimal amounts. Presumably, private firms are fully aware of the productivity benefits – and thus the profits – that may result from R&D. The policy in question, therefore, is whether the firm that carries out R&D provides services for which it is not compensated, and if it does, what the appropriate public response should be. Proponents of government support often argue that R&D-intensive industries are socially desirable because they tend to present few problems of pollution and to be pleasant to work in; electronics manufacturers, for instance, are prize catches for town planners, while steel and chemical plants seldom are favoured. Perhaps so, but the problems posed by environmental pollution are best attacked directly with taxes on polluters, rather than indirectly with favouritism for particular industries.[9] And to the extent that R&D-intensive industries provide pleasant places to work, firms can expect lower labour costs as compensation for these attractions, with no public action required.

[7] Which is not to say that military R&D cannot have useful spin-offs, many less trivial than the moonshot-Teflon variety. For instance, it has recently been argued that the microchip was invented in response to American military requirements: 'The next generation of military aircraft was crying out for so much electronics that there was no chance of its getting airborne unless the electronics were made smaller' (*The Economist* 29 May 1982, 13). While such spin-offs may be important, they are also obviously difficult to plan. And although the Defence Industry Productivity Program currently subsidizes Canadian arms efforts, many Canadians would presumably prefer that military research not become a mainstay of Canada's R&D effort.

[8] In fact, McFetridge argues, 'Economists have yet to produce any statistical evidence that the rate of return to industrial R & D in Canada is not zero' (1977, 74).

[9] McFetridge states this point as: 'The primary goal of R & D subsidies is to encourage R&D. The use of these subsidies to achieve other goals reduces their effectiveness in achieving the primary goal. This is the effect of any stipulation that the results of subsidized R&D projects be exploited in Canada or in a specific region or province of Canada. The goal of increasing employment in the manufacturing of new products can be achieved more effectively by direct subsidization of such employment. Similar conclusions can be reached regarding the use of R&D subsidies to encourage rural life or small business or the use of certain languages. It is always more efficient to subsidize these activities directly' (1977, 53).

International competition

Another common argument for further support for R&D is that it is necessary if Canada is to compete internationally in the high-technology industries. Statements of this sort often strike a popular chord, but economists have a hard time making sense of them.[10] Economists argue that a country should devote its resources to activities that pay the greatest returns. If those activities include investing in high-technology industry, so be it. If they do not, the siren song of high technology has to be ignored. What is profitable – not what is fashionable – should be done. Unless the existing allocation of resources imposes uncounted costs or neglects potential benefits, most economists consider it optimal.

Of course, if a substantial number of Canadians would derive satisfaction from reassurance that, with the appropriate subsidies, Canada can compete with all comers at high technology, a *prima facie* case exists for subsidizing high-technology industries. But given the choice, the less insecure among us are likely to consider the goods these subsidies could purchase a greater contribution to national welfare.

How bad is our R&D record?

A third line of argument often marshalled in support of greater public support for R&D is that Canadian innovators have a poor record. Empirically, this case is not easy to make. While Canada obviously does not lead the world in all fields, there are some specific industries – telecommunications, for instance – in which it has made important technological innovations.

A more general difficulty with the usual indictment of Canadian innovation is that it is made not by comparing actual Canadian performance with optimal Canadian performance – the relevant comparison – but by comparing it with other countries' performance. Moreover, the usual procedure is simply to compare R&D expenditures as a percentage of GNP across countries. Thus, John Shepherd complains that 'on a per capita basis, Canada's "R&D expenditure" performance is slightly better than that of Egypt' (1980, 24).[11]

This procedure presents at least two problems. First, Canadian R&D data emerge from an inventory – not a random sample – of R&D activities across the country. This method of collecting data produces estimates

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[10] It would be just as 'true', for instance, to say that if we wish to be poor, we should squander our resources – though again the economists would scratch their heads.

[11] A way of phrasing his dissatisfaction that must give pause to the Egyptian ambassador.

TABLE 4
Research and development efforts: Canada and the United States

Industry	Industry value-added as percentage of total manufacturing value-added		Expenditures as percentage of industry value-added	
	Canada[a]	US[b]	Canada[a]	US[b]
Food and kindred products	12.7	10.3	0.50	0.6
Tobacco	0.8	0.8	0.04[c]	1.3[c]
Textiles and knitting mills	3.3	2.8	0.40	1.3[c]
Apparel	2.8	3.3	0.04[c]	1.3[c]
Lumber and wood products	6.4	2.4	1.00	1.3[c]
Furniture and fixtures	1.6	1.4	0.04[c]	1.3[c]
Paper and allied products	8.3	4.0	0.04[c]	1.5
Printing and publishing	4.7	5.4	0.04[c]	1.3[c]
Chemicals and allied products	6.3	10.1	2.50	5.9
Petroleum and coal products	2.3	2.6	7.30	5.8
Rubber and plastics	2.7	3.1	0.50	3.1
Leather and leather products	0.7	0.7	0.04[c]	1.3[c]
Stone, clay, and glass products	3.5	3.3	0.30	1.6
Primary metals	7.9	6.7	1.50	1.5
Fabricated metal products	7.7	7.7	0.30	1.1
Machinery, excluding electrical	4.4	11.2	3.00	6.1
Electrical and electronic products	5.2	8.2	7.50	13.5
Aircraft and guided missiles	1.5	3.5	16.50	35.7
Other transportation equipment	9.3	7.4	0.50	7.6
Scientific and technical instruments	1.9	3.2	0.80	7.9
Miscellaneous manufacturing	2.6	1.7	0.04[c]	1.3[c]

SOURCES: *Statistical Abstract of the United States*, 1979, tables 1050 and 1425; Statistics Canada 13-212, table 17, and 31-203, table 3.

[a] Data for 1978.
[b] Data for 1976.
[c] Prorated from data on 'miscellaneous and other manufacturing'.

that are biased downward because when inventories err, they generally err by missing information. A random sample, on the other hand, can miss high or low; it may either over-represent or under-represent R&D expenditures.

The second problem is that even if the raw data are accurate, they may not be especially useful. For instance, a standard contrast is of Canada's manufacturing R&D expenditures with the United States'; in the late 1970s, typical numbers were 0.34 per cent and 1.59 per cent of the respective GNPs (see Table 4). This comparison can be misleading, however. When the US figure is adjusted to account for that country's larger manufacturing sector, it falls to 1.17 per cent. When it is adjusted further to account for the fact that Canada specializes more in industries that are not R&D intensive anywhere in the world, the US figure falls to 0.81 per cent. Finally, when the Americans' special interest in guided-missile research is taken into consideration, their expenditure on manufacturing R&D falls to only 0.75 per cent of their GNP. Thus, more than half the difference between the two countries' R&D efforts is associated with structural differences between the two economies.

An obvious response to this line of argument is that the structures of the two economies are not independent of their R&D efforts. The United States' economy may be tilted towards R & D–intensive industries because R & D is treated differently in that country, because the US has a larger endowment of scientific and technical workers, or because, given the large US market, American firms are better able to make the high fixed costs of R&D.

Several observers have argued that Canadian R&D is not supply-constrained (see Britton and Gilmour 1978), that, quite the contrary, Canada stands well up in international rankings of highly-qualified workers (see Table 5). That a large proportion of this labour is foreign-trained does, however, suggest that providing more aid to Canadian universities and technical schools might be a useful objective for industrial policy if R&D is judged deficient.[12] A constant of the international literature on educational achievement is the appearance of West Germany and Japan, the industrialized world's growth leaders, at the top of the list in mathematical achievement tests.[13]

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[12] At this point readers should, however, recall Chapter 2's warning that much industrial policy is the result of special pleading by self-interested parties. The author is employed by a Canadian university.

[13] Of course, greater aid to education does not necessarily mean direct government intervention in the allocation of resources within colleges and universities, as seems to be the intention, for instance, of the present federal government (see Canada 1981). It is obviously no easier to predict future labour market needs than to predict future industrial structure, which is to say that it is quite difficult.

An alternative strategy to intervention would be reliance on the universities and technical schools to respond to evolving student demands. Many educators have observed that when conditions in the job market change, the news eventually reaches university and college students, albeit through a set of occasionally distorting filters. If the government provided the schools with more information about conditions in the job market, it would help to offset what can be interpreted as at least a minor market failure caused by lack of sufficient

TABLE 5
A comparison of skill levels across countries, 1972

	Harbison-Myers index[a]	Professional, technical, and related workers in the total non-agricultural work force
Australia	183.3	10.93%
Austria	112.9	10.08
Belgium	140.5	11.62
Canada	179.9	14.92
Denmark	139.2	13.63
Finland	109.9	14.89
France	138.8	13.46
Ireland	110.7	12.53
Israel	148.9	19.19
Italy	91.3	7.05
Japan	146.2	8.26
Netherlands	158.6	11.62
Norway	107.4	13.91
Sweden	129.6	20.87
Switzerland	112.6	13.13
United Kingdom	136.2	11.44
United States	325.0	14.21
West Germany	114.3	10.71

SOURCE: Balassa (1977, table 1).

[a] The secondary school enrolment rate plus five times the university enrolment rate in the relevant age cohorts.

Multinational neglect?

Arguments about insufficient supplies of highly qualified workers having generally failed, blame for the alleged deficiencies of Canadian R&D has often been laid instead at the door of multinational corporations (see Britton and Gilmour 1978). Though there is some difficulty confirming the fact in the data, these corporations do apparently do the bulk of their R&D in their home country, in most cases the United States.[14] Using this point to argue for subsidies to R&D, however, presents logical difficulties.

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information about present needs. Whether the government should go beyond this to encourage students to enter various fields deserves very careful consideration.

14 Though they generally do less R&D in Canada than at home, they often do more in Canada than Canadian firms do (Safarian 1979; Schott 1981). The same is true of exporting – another desideratum of many industrial policymakers.

If multinationals behave this way bcause it is efficient, only substantial public subsidies would get them to alter their behaviour. On the other hand, if the multinationals insist on doing more R&D at home *despite* considerations of efficiency, Canadian researchers and developers should be able to out-perform them even without subsidies.

One possible strategy for encouraging Canadian R&D is to provide domestic producers with access to a market sufficiently large to allow substantial spreading of its usually large fixed costs. One way to do this is to give domestic producers effective monopoly on government contracts. (It is also sometimes argued that this course is required to prevent potential foreign customers' doubting the quality of domestic output: if even the domestic government does not have confidence in the local producer, why should they?) Unfortunately, giving domestic firms a monopoly on the home market may effectively restrict them to that market. Other countries are unlikely to take kindly to government attempts to exclude them and may well respond in kind. Thus, the real choice may be between producing almost exclusively for the domestic market and competing in both the domestic and the foreign market. And the Canadian domestic market simply is not big enough to allow producers to exploit economies of scale. Restriction to it might, therefore, be fatal to high-technology producers.

Another way to provide domestic producers with access to large markets is to adopt an export-led strategy. A striking illustration of the handicap presented by the small Canadian market is provided by the single statistic that each year the US government alone purchases more electronic equipment than is bought in the entire Canadian market (Cohen 1982). It is hardly surprising, therefore, that many members of the Canadian electronics industry favour free trade with the United States *(Financial Post*, 13 December 1980). On the other hand, proponents of increased aid to R & D often argue that the Canadian economy cannot be exposed to greater industrial competition until it has undergone 'prior re-furbishing' (Britton and Gilmour 1978, 61). They do not explain, however, how useful 're-furbishing' can be achieved unless competitive forces mould the economy.

Is intervention really necessary?

Finally, it needs to be asked whether Canadian governments can usefully do more for R&D than is already being done. Although recent analysis demonstrates that small, open economies may not wish to give any patent protection at all (Berkowitz and Kotowitz 1982; Kotowitz, forthcoming), Canada currently provides generous legal protection to inventors and licensees. Moreover, under the existing tax system, more than two-thirds of every new dollar of R&D expenditures by private firms is ultimately financed by the federal treasury (Bird 1981).[15] Donald McFetridge concludes that federal expenditures on subsidies and R&D contracts 'could be the source of as much as thirty per cent of industrial R&D spending' (1977, 57), while Kerry Schott puts the direct contribution of Canadian governments to the finance of industrial R&D at 25 per cent (1981, fig. 1). Those figures are significantly higher than the corresponding ones for Japan and West Germany, although lower than those for the United Kingdom and the United States.

In fact, current Canadian support for R&D may be inefficient – because it is greater than what would be necessary to overcome the disincentive to innovation that arises from its nature as a partly public good. Work by Howe and McFetridge reveals that in the machinery and chemical industries 'recipients of subsidies [to R&D] do not change their overall R&D budgets' (Howe and McFetridge 1976, cited in McFetridge 1977, 69). Thus the generous assistance that is already given may be having only limited effects on the overall level of R&D in Canadian industry, and the ever more lavish assistance proposed by the Science Council and others may, if adopted, only send good money after bad.

Still, considerable agitation exists for stepped-up assistance to innovators (see Science Council of Canada 1982; 'Canada Needs Dramatic R&D Push', *Financial Post* 27 Feb. 1982).[16] Should such pressures prove politically irresistible, due regard to the possibility of government failure suggests that policy should not be overly elaborate. In particular, general incentives – via tax credits or non-discretionary subsidies – would be preferable to attempts to choose the likely winners and losers. The use of refundable tax credits, rather than write-offs, would permit the government to be neutral between (presumably large) firms with existing cash flows and (presumably small) firms just starting out.[17]

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[15] A scheme recently described in the business press raises the effective first-year write-off to 80 per cent (*Financial Post*, 1 May 1982). In fact, the market does move resources into high-technology: high-tech issues have been doing relatively well in the stock market in recent years. Moreover, Canada has at least 113 companies that produce computers and computer-related equipment (*Toronto Globe and Mail*, 29 March 1982).

[16] In fact, the federal government has announced its intention of raising overall R&D expenditures to 1.5 per cent of GNP (*Financial Post*, 21 February 1981). Why this number should be optimal – indeed, whether there are enough potentially profitable projects to consume this volume of funds – is not explained. One might as easily contemplate a policy to get every citizen's percentage of body fat to the same level. There certainly is no *economic* rationale for the government's goal.

Governments that opt for general incentives to R&D need not, however, entirely exclude the possibility of direct assistance to particular projects. In some industries, the market failure in R&D may be so severe that even a combination of patent protection, tax incentives, and general subsidies will not provide sufficient inducement for private agents to perform the socially optimal level. In a fragmented, competitive industry such as agriculture, for instance, it may be difficult to police or even secure patents on various types of innovation. Although anyone who invents a new kind of fertilizer or drainage tile can enforce his or her property right relatively easily, it is much more difficult to prevent rivals from using new techniques of contour ploughing or crop rotation. As a result, socially profitable innovations may not be forthcoming without direct public support of researchers in these and similar areas.

On the other hand, even when the industry in question involves externalities or public goods, it must be stressed that market failure in R&D may not exist. So long as governments reduce the incentive for firms and individuals to pollute the air, for example, people who invent gadgets for controlling the emissions of factories, buildings, vehicles, and the like will make money in the effort, much as the soldier who banks his pay cheque gets exclusively private benefits from providing defence, which is the classic public good. The market failure government should address is failure in the R&D market itself, not in the market for the good or service whose production R&D is meant to facilitate. That such failures now require increased incentive to R&D is by no means proven.

EXPORT ASSISTANCE

A second contention of many would-be makers of industrial policy is that Canada has too large a trade deficit in processed goods. This thesis, too, is difficult to demonstrate. Despite the country's highly publicized and rapidly increasing nominal-dollar deficit in manufactures (see, for instance, Shepherd 1980, i, 10), most statistical indicators suggest that its manufacturing performance has improved considerably in the last two

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[17] Students of industrial organization have a long-standing and still unresolved argument about whether large or small firms are better placed to succeed at R&D. In any case, there is little justification for the government's choosing sides; the more efficient form of organization will prevail, provided the government does not interfere.

TABLE 6
Selected manufacturing indicators: 1963 and 1980

	1963	1980
Total exports/GNP	15.8%	26.4%
Manufacturing shipments/GNP	60.9	57.5
End product exports/GNP	1.7	7.6
End product exports/manufacturing shipments	2.9	13.2
End product exports/total exports	11.5	28.9
End product exports/manufacturing exports	20.6	42.8
Manufacturing exports/GNP	8.5	17.8
Manufacturing exports/manufacturing shipments	14.0	30.9
Manufacturing exports/total exports	56.0	67.5
End products deficit/end products exports	311.7	83.4
End products deficit/manufacturing exports	64.1	35.7
End products deficit/total exports	35.9	24.1
End products deficit/manufacturing shipments	8.9	11.0
Manufactures deficit/manufacturing exports	24.8	3.3
Manufactures deficit/total exports	13.9	2.2
Manufacturers deficit/manufacturing shipments	3.5	1.0

SOURCE: Canada, Department of Finance, *Economic Review* (Ottawa: Minister of Supply & Services 1981) tables 75, 76, 7, 23.

NOTE: End products comprise motor vehicles and parts, other machinery and equipment, and consumer goods and miscellaneous. Manufacturers comprise end products plus fabricated materials.

decades. As shown in Table 6, exports of end products have risen dramatically as a share of GNP, of manufacturing shipments, of total exports, and of manufacturing exports. In fact, of the sixteen indicators shown in Table 6, only two have moved in the 'wrong' direction: manufacturing shipments are down slightly as a share of GNP, and the end-products deficit is up slightly as a share of manufacturing shipments. The other fourteen indicators all show dramatic 'improvement'.[18] (The quotation marks are used because most economists, unlike most laymen, are unwilling to attach normative significance to the level of exports or imports.)

Unfortunately, the facts of the matter have not discouraged those who insist on seeing Canada's export performance in the worst possible light.[19] The theoretical case for measures to promote exports is not strong.

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[18] The data presented in Table 6 reflect trends and are not merely the result of what economists refer to as 'endpoint regression'. In other words, it is not just that 1980 was a special year for end product exports; it wasn't.

Is intervention really necessary?

Most economists argue that if the proceeds from exporting exceed its costs by a margin sufficient to earn exporters the going rate of profit, then exporting is desirable. Of course, if firms can get the going rate of profit, they will see to it that exporting does take place. But unless exporting is profitable, it should have no special claim to government support. To the usual rejoinder that exporting, profitable or not, provides jobs, economists respond that the object of economic policy is not to provide jobs but to maximize well-being. A necessary first step is to get national output to its greatest possible level. How encouragement of an inefficient allocation of resources can accomplish this is hard to know. If exports are not profitable without subsidy, subsidies should not be paid; if exports are profitable without subsidy, subsidies are not necessary.

Of course, if, at some stage, exporting creates external benefits or involves the production of public goods, then it may merit public support. Government may thus have a role in providing very particular forms of export assistance – for instance, general information about Canada and the way business is conducted here. In addition, Canadian officials overseas, in the normal course of their diplomatic activities, may make contacts of considerable use to Canadian exporters. Opportunities of this sort should obviously be exploited. On the other hand, the interest of private firms in developing their own contacts – either directly or through the intercession of private brokers – should not be underestimated. Perhaps the most ebullient minister in the history of the federal Department of Trade and Commerce once provided his assistants with cufflinks inscribed: 'YCDBSOYA!' ('You Can't Do Business Sitting on Your Ass!'). The sentiment is as appropriate for private as for public agents.

In fact, the bulk of assistance the federal government now gives to exporters consists not of information but of loan guarantees and export credits granted at lower-than-market rates (Davenport et al. 1982). If largesse of this sort is intended as foreign aid, it is hardly objectionable (although a standard proposition in the literature on gifts is that recipients

[19] Albert Breton calls the modern obsession with exports 'neo-mercantilism', attributing it, at least in part, to a desire to increase the absolute size of the population (1974b, 13). This justification does not ring true, however. Many of those who most wish to direct industrial growth also wish to control both the natural growth of population and immigration.

generally value aid more when it is unconditional). But if credits and guarantees are intended mainly as an encouragement to Canadian producers, the economist needs to identify the external gain that would make subsidies efficient. In many instances of export assistance, no externality exists and the benefits accrue mainly to the bank accounts of Canadian exporters. Why they should receive welfare payments of this sort is hard to understand.

AID TO AGRICULTURE

As Davenport et al. 1982 suggests, the bulk of financial assistance to Canadian industry goes to agriculture, in the form of loan guarantees, subsidized credit, investment grants, and cash payments under various subsidy and price support schemes. Although many arguments have been offered over the years to justify such special aid to this sector, it is hard to find any grounded in the logic developed in the last two chapters.

Is intervention really necessary?

Aid to agriculture is often justified on the grounds that the family farm is central to 'the Canadian way of life'. This argument might be more convincing if a larger proportion of assistance to agriculture were aimed exclusively at family farms. Only special inheritance provisions are so aimed. Moreover, the number of Canadian families who earn their livelihood farming is not large. The Jeffersonian ideal of democratic yeomanry has always had greater appeal for Americans than for Canadians, and even if the social stability allegedly provided by such a yeomanry were valued as highly in Canada, it probably is too late to do much about it. Employment in agriculture is now only slightly more than 5 per cent of total employment. Whatever worries others may have had for them, farmers themselves have shown no great reluctance to join the urban masses during the last five or six decades. Of course, if the family farms did confer external benefits for which farmers were not compensated, their movement may not have been socially optimal. On the other hand, the dramatic shift in industrial structure that has taken place in the last half century means that the externality had better be massive if people are to be induced to remain on – or return to – the farm in the name of economic efficiency.[20] Similarly, any disruption of city life that the influx may have caused would also have had to be considerable in order to justify persuading farmers not to move. Although the movement to the cities undoubtedly *has* caused social disruption, it is hard to imagine how the appropriate entry tax might have been calculated – or levied. In the absence of such taxes, the existing patchwork of assistance to farmers is a poor second best. Moreover, the effect, if not the intent, of much assistance to agriculture is to restrict farm output and, therefore, presumably, farm employment. How this helps the cities is hard to see.[21]

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[20] In fact, the literature of economic development normally uses as an indicator the percentage of a country's work force that is employed in agriculture; the less-developed countries have the higher percentages.

Another common argument is that if financial assistance to agriculture were removed, the consequent increase in food prices would be unfair to the poorest members of society, for whom expenditures on food constitute a large portion of the family budget. This logic presents several difficulties, not least that the premise is unacceptable. Much assistance to agriculture takes the form of payments to farmers to keep produce *off* the market (Haack, Hughes, and Shapiro 1981). If this sort of assistance were removed and other forms of supply management were done away with as well, food prices would probably fall.

Even if the premise is accepted, the implicit conclusion does not necessarily follow. If the price of food rose after removal of assistance, the reason would be that it now reflected the full cost of producing farm goods. There being no such thing as a free lunch, these costs had not gone uncovered before; rather, they had been financed by taxpayers. After agricultural reform, the consumers of the farm goods would pay the full cost of what they consumed. People who do not value farm produce at more than it costs to produce would no longer consume it. If this group included a disproportionate number of poor people, remedial measures might be called for. But better, surely, to compensate poor people directly, by giving them money, than to benefit them indirectly at the cost of unfair redistribution to all farmers and food consumers, rich and poor alike.

Another argument sometimes offered in support of cash assistance to farmers and price supports for farm goods is that, farming being a risky business, the farmer has no incentive to invest in productivity-improving techniques unless a legally sanctioned cartel gives him a reasonable assurance of profitability.[22] This argument is directly related to a long-standing controversy in the literature on industrial organization about whether monopolies provide more innovation than competitive firms (see

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[21] Though by raising the price of food, it does make city life less attractive.

[22] Perhaps the most prominent proponent of this argument is the ex-Ontario farm boy, John Kenneth Galbraith (see 1981a).

Scherer 1970). The claim that they do rests on several assumptions that remain unverified by the data. One is that monopolists have readier sources of cash with which to finance research and development; yet although they may (but do not necessarily) earn higher than normal profits, many competitive firms also have substantial cash flows and ready access to capital markets. Another assumption necessary if the argument is to hold water is that monopolists do not aspire to the quiet life, but vigorously defend their monopolies by pushing productivity continually forward. A third is that the monopolist is better able to profit from innovation than is the producer in a competitive industry.[23] Finally, although agricultural prices do fluctuate more than many other prices, it is far from obvious – though presumably it could be demonstrated – that agriculture is appreciably more risky than many other industries. Other sectors have enough firms fail each year to suggest that riskiness in business is a common phenomenon. Moreover, even if capital does shun agriculture because its returns are unduly problematic, it may be easier to deal with the problem by direct compensation for risks undertaken than by interferences with supply that are bound to be awkward, costly, and arbitrarily redistributive.[24]

The road to autarky

A final argument often used to justify support for agriculture is that some measure of self-sufficiency in food products is essential to the country in case external sources of supply are cut off. This argument may have some merit, although given Canada's significant comparative advantage in agriculture, it seems unlikely that its food industry will ever shrink to the point at which the domestic demand for most staples cannot be met out of domestic supplies. Moreover, for many products, self-sufficiency or even potential self-sufficiency is not an obvious desideratum. For instance, *not* subsidizing Canadian winemakers may be efficient in the long run even if Canadians would have to do without wine if imports were ever cut off.[25]

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[23] As already argued in this chapter, however, the disincentive created by the public-goods attributes of R & D is a failure of the market for information, not the market for the particular output in question, and should be attended to on its own.

[24] Whether it is desirable to compensate for risk at all is addressed in Chapter 5. The most recent in a long line of horror stories about agricultural supply management concerned the inability of a nationwide chicken retailer to acquire fresh broilers despite a nationwide surplus of 40 million pounds of frozen birds (*Toronto Globe and Mail*, 14 April 1982).

[25] If circumstances did arise under which imports were no longer possible, it is unlikely that resources would be permitted to remain in wine production

Even if the self-sufficiency argument had some validity for the country as a whole, it is hard to see how it would justify support for producers within particular provinces. Yet, to cite only one example, Quebec's agricultural policy is motivated in large part by concern that 'imports' from other provinces have been responsible for an increasing share of the 'domestic' market. The Quebec government's white paper on economic development pays considerable lip service to comparative advantage, yet its policy sections seem intent on eliminating 'imports' (Davenport et al. 1982). Indeed, the official object of the government's agricultural policy is to achieve global self-sufficiency in food products, by which is meant a surplus in international and interprovincial trade (Quebec 1979). Since many food products now imported into Quebec simply cannot be grown there, those that can will have to achieve large trade surpluses – whether or not the province enjoys a comparative advantage in their production. This goal has led to blatantly anomalous policies, such as encouraging the production of red meat – this in a country that, as yet, includes Alberta. And since beef cattle need grain to feed on, the government has also been encouraging farmers to sow grain, despite Saskatchewan's continued presence in Confederation. A final folly has been the province's push for self-sufficiency in hog production, which has largely been achieved, though at the considerable expense of a locally depressed hog market (Puchniak 1982). It is hard to say which would be more disturbing: if public officials were surprised by the hog cycle, or if they were not but went ahead anyway.

Unless a provincial government anticipates the kind of political ruptures now bruited only in drugstore fiction, policies that aim at provincial self-sufficiency in food products can only be interpreted as part of an effort to curry political favour with rural voters. Indeed, several observers have credited most assistance to farmers not to a concern for economic efficiency, but to a desire to win their political support (for instance, Haack, Hughes, and Shapiro 1980; Borcherding 1981).[26] Because explicit redistribution to them would be politically impossible, politicians resort to indirect – and usually inefficient – means to accomplish the desired transfer of resources. Citizens who are neither farmers nor politicians would do well to insist that such activity not take place, or that it at least

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anyway. The global emergency argument failing, the only other rationale for import-substitution in this and similarly non-critical industries is the redistribution of income away from consumers, towards producers.

[26] The political calculus that makes such behaviour profitable was described in Chapter 2.

be explicit so as to avoid the extra or deadweight loss that arises from induced inefficiency in the use of resources.

SMALL BUSINESSES

Many of the same sorts of arguments used to justify support for family farms are also offered by the proponents of aid to small businesses. They often suggest, for instance, that democracy benefits from having many independent-minded entrepreneurs in society. By contrast, they say, no one would dare make waves in a society composed entirely of salaried workers. This argument is obviously hard to prove empirically; moreover, it may seriously overstate the independence of mind of franchisees and small suppliers of national and international corporations, who account for such a large percentage of small businesses. If money – or its political proxy, employment – ultimately talks, it may make little difference to a town, province, or country to have large numbers of independent-minded small businessmen when most employment and investment decisions are made by a relatively small number of large corporations. If the real problem is a high level of corporate concentration in the economy, even a significant increase in aid to small business is unlikely to remedy the situation.

A second common line of argument is that small businesses deserve public support because they provide the bulk of economic growth, employment, and/or innovation – in other words, that small businesses deserve support because they are efficient.[27] Both the premise and the conclusion are debatable. Although many observers argue that the industries of the future will be largely decentralized, others respond that the economies of large-scale production will be as important in future as they apparently are now.[28] Whatever the truth may be, it is hard to see how efficiency gains are to be had by government's taking sides in this debate. Its most appropriate stance is to endorse no particular form of industrial organization. If small firms are better able to deal with the industrial problems of the future, they will presumably predominate so long as there are no legal or administrative restrictions on their development; public subsidies only gild the lily. On the other hand, if small firms are not able to cope, public subsidies encourage the proliferation of an inefficient form of organization and, therefore, should not be paid, at least not unless the external benefits from such firms are significant. That it is usually the owners of small businesses who advert most often to the virtues of this form of enterprise does not mean that there are no such benefits, though it creates a strong presumption to that effect among all but the most generous spirits.

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[27] For instance, Quebec's minister of state for economic development, Bernard Landry, has urged Quebecers to follow the example of Japan, where, he alleges, small business has provided 'the key to success' (*Toronto Globe and Mail*, 22 January 1981).

[28] *The Economist*, for instance, has repeatedly argued that the computer business of the future will be operated essentially out of people's garages. On the other hand, Fred Lazar (1981, 75) suggests that small businesses have difficulty surviving in the export market on their own (though he concludes from this that they should be given increased export assistance).

In summary, most economists argue that if small businesses need assistance in order to survive, they probably should not get it, and if they do not need it, they obviously should not get it. Unfortunately, advice of this sort has not prevented the emergence of elaborate support programs for small business, including, in most jurisdictions, specialized ministries (see Davenport et al. 1982).[29] In fact, Quebec's Caisse de Depot et Placement, which invests public pension revenues, recently announced its intention of doubling its 'aid' to small businesses (*Toronto Globe and Mail*, 3 March 1982). This action will presumably be taken regardless of the likely profitability of such businesses. It is hard to say whether the decision will more alarm efficiency-minded economists or pension-minded citizens.

SECTOR FETISHISM

Another argument offered by the proponents of an active industrial strategy is that Canada's economic development hinges on the success or failure of certain critical sectors. Discussion of this idea has been left until (almost) the end of this chapter because, contrary to the usual disclaimer, it is perhaps the least important and certainly the least securely founded application of the public goods–externalities analysis to the problem of industrial policy.

Chapter 1 said that the 'industrial' in 'industrial policy' would be understood in this study as referring to all sectors of the economy, not just to manufacturing. When many policymakers use the phrase, however, they seem to mean policies designed to encourage manufacturing. The federal government has enacted many measures whose aim is to increase the share of manufacturing in total employment and output; not least of them is the reduction in corporate tax for manufacturing and processing firms (see Davenport et al. 1982). Similarly, several provinces' industrial policies emphasize encouragement to manufacturing and processing. The official goal is usually to encourage 'balance' in the economy, but since most provinces have less than the national average share of manufacturing, 'balance' means more manufacturing. Occasionally, the provincial policy statements make the preference for manufacturing explicit: regions or countries that do not have the Organisation for Economic Co-operation and Development's average share of manufacturing employment or output are labelled with the pejoratives 'semi-industrialized' or 'underdeveloped' (see, for instance, Britton and Gilmour 1978).

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[29] The lengths to which governments are driven in this effort are extraordinary. For instance, one federal agency publishes a series of manuals for small businesses, one of which encourages retailers to compare their own mark-ups with competitors' and instructs them in how to exploit the psychological frailties of consumers: 'An item selling for $29.99 has more consumer price appeal than the same item at $30.00. The dollar figure is what registers first with most consumers. Many retailers purposely avoid ending their retail prices in even numbers or in 5s. . . . Most consumers, when seeing such odd numbers, will subconsciously think the price is *less* than what they were numerically expecting' (Federal Business Development Bank 1979, 3, 9).

Is intervention really necessary?

For most economists, employment and output shares are largely a matter of aesthetics, and aesthetics should have no role in industrial policy-making. Rather, governments should encourage whatever industrial structure uses the economy's resources most profitably and let the output and employment shares fall where they may.

Of course, if manufacturing brings benefits for which the people who work in, buy from, or in any way deal with the sector are not compensated, then a policy of special favours for it may be efficient. But by any reasonable estimate, the external benefits of manufacturing are elusive, to say the least. One of those alleged is almost exclusively psychological. Although individual Canadians are not unwilling to derive the bulk or even all of their incomes from the resource industries, Canadians as a group often seem disturbed by the fact that so many of their fellow citizens earn their keep hewing wood, drawing water, drilling oil, mining ore, and the like. Because opprobrium attaches not to people in these industries but to the nation as a whole, so goes the argument, one of the costs of operating them is not borne by the firms involved. And as this chapter has argued, when decision-makers do not bear the full costs of their actions, public intervention may be called for.

Whether this alleged reduction of self-esteem is of any real consequence is something each Canadian must answer for himself. Most economists would argue that any such loss should weigh only lightly when balanced against the income that would be sacrificed by declining to develop Canada's natural resources (for which the need is obviously great elsewhere in the world) and concentrating instead on industries in which Canada has no obvious comparative advantage. The last point deserves emphasis. When capital and labour can earn high returns elsewhere in the economy, their cost to manufacturers is high. Since an economy cannot do all things at once, concentrating on manufacturing means moving capital and labour out of resource industries, where their returns are likely to be appreciably higher than in manufacturing. Thus, to achieve the desired shift in allocation either the subsidies to manufacturing or the restrictions on resource development will have to be substantial.

Of course, it may be that declarations about the desirability of balance in provincial economies are meant to be taken at face value. In that case, balance is not a question of aesthetics but of stability. Whether or not a given province can achieve greater stability by enlarging its manufacturing sector is obviously an empirical question. Manufacturing itself is notoriously unstable; in fact, many of the resource industries whose instability the provinces resent are unstable precisely because the outputs of the foreign manufacturers to whom they supply raw materials fluctuate markedly.[30] And given the openness of most provincial economies, it is difficult to see how changes in the local industrial structure, unaccompanied by trade barriers, could have a significant effect on the stability of the demand for the outputs of other local industries.

A separate but no less important question is whether the overall stability of employment in a province or country is important. What matters to individual workers is, presumably, the stability of employment within given industries. Those who worry about job instability can always trade off higher wages for reduced variability of employment. As a result, industries with stable employment patterns would face lower labour costs and be able to expand, as the workers desire.

Even if workers favour greater stability of employment than is available to them through negotiations in the labour market, calculation of the optimal degree of instability for an economy is likely to be an impossibly difficult problem.

EXTERNALITIES AND THE SOCIAL RATE OF DISCOUNT

In evaluating the profitability of potential investments, private investors use what economists call a 'rate of discount'. It can be thought of as the rate of profit a firm would have to earn on the investment if it is to be worthwhile to the firm. For instance, if the rate of discount is 10 per cent, the firm invests only in those projects whose future returns exceed their costs by 10 per cent, on average.

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[30] In fact, the year-to-year variation in employment during the past two decades has been only slightly greater in Canadian resource industries than in manufacturing.

A common decision rule for private firms is to equate the rate of discount to the going rate of interest in the capital markets. Thus, if the rate of interest is 15 per cent and the firm applies a rate of discount of 15 per cent to any investment it considers, it can be sure (so long as its calculations are correct) that any project it invests in will bring a return great enough to pay the capital costs of investing in it. (Not incidentally, this is why high interest rates discourage investment.)

The rate of discount says something about the firm's – or at least, the firm's owners' – preference between future consumption and present consumption. Investment involves the postponement of present consumption in favour of greater future consumption. When the rate of discount is high, the firm is unlikely to invest in many projects; the firm's owners have a strong preference for present consumption, and only the prospect of significant future returns can persuade them to invest. On the other hand, a low rate of discount means that the owners have only a slight preference for present consumption; not much in the way of a future bonus is required to induce them to invest.

Writers in the literature on investment often argue that investors are likely to adopt discount rates that are too high (see Marglin 1963; Layard 1972). The reason they 'discount' the future excessively is that they ignore the benefits that investments may confer on people who will be alive in the relatively distant future – say fifty years from now. By ignoring these external benefits, investors tilt the consumption-investment decision too much towards consumption. Thus, government may properly encourage investment by adopting measures that effectively replace the private rate of discount with a social one.[31]

For this study, the important point about these measures is that they are not likely to involve special programs for specific industries. Some industries may well be hit harder than others, but at least policymakers do not have to decide which ones to hit and which to pass over.

Of course, once it has been decided to try to impose a social rate of discount, the usual warnings about the possibility of government failure apply. And few economists would wish to have to provide a point estimate of the appropriate rate. The literature includes many lively controversies on this question, few of them conclusive (for instance, Jenkins 1980b; Sumner 1980).

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[31] Whether or not Canada needs to provide greater encouragement to saving, Canadians have had a higher savings rate in recent years than Americans. There is some evidence that fiscal incentives to savings, such as the Registered Retirement Savings Programme, have made part of the difference (see Wirick 1982).

CONCLUSION

This discussion of public goods and externalities has suggested that third-party effects are important in many markets. On the other hand, it is usually difficult to decide precisely how much public action is required to offset or eliminate them, and there is always the danger that too much remediation will simply replace one form of inefficiency with another. It also should be clear that there are other instances in which third-party effects are *not* involved – in which, indeed, there is no market failure of any kind. Remonstrations to the contrary from first and second parties have to be seen as mainly self-seeking.

5
Other forms of market failure

In this chapter, five additional generally acknowledged forms of market failure are described and their implications for industrial policy discussed. As before, the problems are deciding when such failures present significant impediments to the efficient allocation of resources and calculating whether public policy can do anything to offset their ill effects. That each of these five forms of market failure is given shorter shrift than the public goods–externalities problems discussed in the previous chapter probably is a fair reflection of the literature of economics on market failure.[1]

RISK-TAKING AND RISK-AVERSION

A bird in the hand probably *is* worth at least two in the bush. Economists refer to the pattern of preferences expressed in the proverb as 'risk-aversion'. They conceive testing an individual's risk-aversion as asking if he or she would choose to receive \$1.00 *gratis* or to participate in a lottery with a fifty-fifty chance of winning either \$2.00 or nothing. (Note that the average, or 'expected', return of the lottery is the same amount as the certain return.) People who prefer the sure thing to a lottery that has the same expected outcome are said to be 'risk-averse'. If they don't care which alternative they get, they are 'risk-neutral', and if they actually prefer the lottery, they are 'risk-lovers'. Most economists argue that the average person is likely to be risk-averse.[2]

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[1] It is probably also a fair reflection of the literature on industrial policy that the discussion of risk consumes almost half this chapter. Many recent commentators place great emphasis on the private sector's alleged inability to deal with the problems posed by excessive risk (see Smith 1982); in fact, policies to compensate innovators and others for the risks they bear have attained virtually sacrosanct status (see McFetridge 1977).

[2] Perhaps this judgement says more about economists than about the average person.

In fact, risk-aversion may not be evident in a person's choice between the sure $1.00 and the expected return of $1.00. When the amounts involved are small, risk is not important; for instance, many otherwise sensible people participate in government-run lotteries in which the price of the ticket is appreciably greater than the expected value of the winnings. In terms of our example, they prefer an expected return of, say, $0.75 to the certain saving of $1.00 that can be had by not buying a lottery ticket.

The reason, of course, is that they have an outside chance of a very big win. As the dollar amounts in question rise, however, people are less and less likely to choose the lottery. If, for instance, the choice is between the certainty of receiving one's annual income and a fifty-fifty chance of receiving double that amount or nothing, most people probably would think very carefully before choosing the lottery. The economic rationale for this behaviour is that, as another colloquialism suggests, an individual's 'bottom dollars' are more valuable to him than subsequent additions to his wealth.[3] Since the first few dollars are more highly valued than those that take the individual into unaccustomed levels of consumption, the downside loss of utility if this lottery is lost is much greater than the possible upside gain it offers, even though the *dollar* loss and gain are the same. In other words, for people of modest income, the pain of losing, say, $50,000 exceeds the pleasure of winning it. Thus, people are especially likely to display risk-aversion when contemplating the possibility of large losses. By contrast, when only small losses or gains are in question, downside and upside dollars are likely to have the same weight in people's utility functions, so one can expect risk-neutral or even risk-loving behaviour.

Risk and public policy

The observation that many people seem to be risk-averse has often prompted the suggestion that governments provide financial and other kinds of support for especially risky investment projects – that is, for projects in which the chance of large loss is appreciable.[4] The reasoning runs along the following lines. Even though a project that cost, say, $1 million could be expected to pay back $2 million over an economically profitable period and, therefore, probably should be undertaken, the off chance that it might bring a return of significantly less than $2 million may discourage businesses from making what would otherwise appear to be an efficient use of resources. The government may, therefore, wish to intervene to compensate firms for incurring risks.[5]

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[3] Economists talk about the 'declining marginal utility' of wealth or income. The point is that as income or wealth rises, the pleasure derived from each successive dollar declines.

[4] The federal government's present economic development strategy, for instance, pledges that the government will 'put in place measures to support high-risk innovative activity by Canadian entrepreneurs' (MacEachen 1981, 16).

Sober second thoughts

Several qualifications must be appended to this argument. In the first place, most human activities, economic or not, involve at least some measure of risk in the sense that their outcomes are not certain. While most activities are not so risky that no one engages in them at all, many undoubtedly suffer from under-investment as a result of people's preference for certainty. In theory, the social loss from slight under-investment in most industries could easily be greater than the loss from even severe under-investment in any one industry. Thus, an optimal public policy towards risk might well involve at least some support for all risky business ventures – which, by definition, means all business ventures. In the absence of such a global policy towards risk, however, it is by no means a foregone conclusion that public support for this or that risky project can improve the allocation of resources.

A second difficulty with public support for risky ventures is simply that it may not make sense to indemnify people for incurring costs that are true costs. Risk-aversion exists because people do not like to chance large losses of well-being. If public policy cannot eliminate the possibility of large losses or reduce their impact through spreading or pooling risks, it is hard to see why people should be compensated for running them. Why this cost among all others should be removed from the calculus of benefits and costs when a project is being evaluated is far from clear.

Third, public measures to eliminate or compensate for the bearing of risks may be superfluous in many cases. There are well-known private processes by which investors in chancy undertakings can minimize or avoid risk. The most obvious is the purchase of an insurance policy.

[5] Among the many possible policies are subsidies to investment, tax favours of one kind or another, reduced-interest loans, and even public ownership. Another mechanism for risk reduction, strange as it may seem, is corporate and personal income taxation. By reducing both the expected returns from investment and the variance of these returns, income taxation may well reduce the riskiness of a given investment. The government, in effect, shares in the investor's gains, but, so long as it allows tax offsets for business and/or capital losses, it also shares in his or her losses (see R. Gordon, 1981).

The use of any of the policies assumes, of course, that the government itself is risk-neutral, a point disputed in McFetridge 1977.

Because insurance companies know that in many areas of activity only a small percentage of ventures will turn sour, they are able to offer protection against large losses in exchange for a small, guaranteed loss – the payment of a premium. The stock market also enables firms to spread the risks of large losses by apportioning them to a large number of people. If a firm's stock is very widely held, only small personal losses will result from even a very large corporate loss.[6] As a result, the firm can behave as if it were risk-neutral. In other words, it can treat a dollar of potential upside gain equally with a dollar of potential downside loss. On the lending side of the market, the institution of limited liability puts a ceiling on the individual investor's potential loss. Moreover, by choosing portfolios of assets carefully, investors can both participate in risk-*spreading* by the issuing corporations and do their own risk-*pooling*. Thus, even if every stock an individual owns is highly risky, so long as they do not all move in the same direction at once the overall return to the portfolio can be quite steady.

The efficient spreading of risks on the stock market deserves a moment's further consideration. Risk-spreading works because one very large potential loss is turned into many very small potential losses by dividing the ownership of an investment project among many people (see Arrow 1971). The dollar value of the loss would be the same in both cases: if the single owner of a firm stands to lose $1 million, ten thousand stockholders each chance a loss of $100. The utility loss from the single loss of $1 million is, however, likely to be considerably greater than that caused by the many-times-repeated loss of $100. In the world of risk-spreading, the whole is greater than the sum of its parts; in terms of utility, many small losses add up to less than one big loss.[7]

This way of viewing the problem of risk suggests that it should be judged not necessarily by the absolute dollar value of the largest possible loss a project may suffer nor even by its dollar value compared with the firm's net worth, but by the size of the potential losses to investors relative to their own net worths. In the case of many large firms, even a complete collapse of stock values would inflict significant losses of wealth on only a small proportion of the shareholders.[8]

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[6] An interesting point here is that although a firm's shareholders may wish it to behave in a risk-neutral way, its hired managers may exhibit risk-aversion. The reason, of course, is that if the firm suffers a big loss, they stand to lose their jobs, which would usually cause a large loss in their own well-being. Risk-neutral shareholders may wish, therefore, to devise incentive schemes that impose large penalties on managers who do not take risks. Public policy need intervene only if the shareholders are unable to enforce risk-neutrality, and even then the possibility of government failure cannot be ignored.

[7] The whole *has* to be greater than its parts, since the costs of arranging for the risk-spreading have to be financed.

These comments are particularly relevant to many of the major projects now underway or contemplated for the near future in Canada.[9] While they involve large amounts of money and promise returns that are far from certain – as the decision to abandon the Alsands project made starkly clear – the fact that many of them have been or will be undertaken by large firms whose stock has been widely issued suggests that much spreading of the risks involved in these projects can occur under purely private auspices. Moreover, many such firms are also engaged in internal risk-pooling – that is, investing in projects whose returns are more or less independent of each other so that bad luck with one may be offset by good luck with another. For instance, the reason many large firms have invested in several energy projects is not necessarily to acquire a monopoly over energy but rather to provide themselves with an effective hedge against financial disaster.

That widespread ownership may prevent a large potential loss from being excessively risky is often used as a rationale for government-sponsored risk-spreading on the grounds that the government has more 'shareholders' than even the largest private firm. On the other hand, many private firms also have enough shareholders to engage in efficient risk-spreading (see Arrow 1971). The managers of such firms can, therefore, ignore possible variations in an investment's returns and treat its expected returns as if they were certain. In fact, the problem of risk may be greater at the other end of the investment spectrum, where small firms engage in speculative ventures; because the firms are small, they find it difficult to spread the risks by going public.

The riskiness of public risk-spreading

One problem – possibly one of many – with public participation in risk-spreading is that while it may, in some circumstances, reduce the overall utility loss arising from the risk, it certainly redistributes its incidence. The burden shareholders used to bear is now borne by the taxpayers at large. They are unlikely to find it immediately obvious why they should be required to run a risk whose benefits, if any, will accrue to shareholders or other owners. What is more, the benefits may be quite

[8] In fact, the losses to workers probably would be greater (see Chapter 7; and Green, forthcoming).

[9] See the discussion of the Major Projects Task Force's recommendations in Tupper 1982.

concentrated, which means that the last dollars of benefit may be valued but slightly by those who earn them (McFetridge 1977, 21). Of course, if the benefits, concentrated or not, are external, then public intervention may be warranted, though the justification in such cases is the externality, not the risk.

Here intrudes another of the conundrums so common in economics: if risk-spreading can reduce the overall utility loss from any potential dollar loss, then risk-spreading will be profitable, the firm's stock will do well on the market, and the investment in question is likely to go forward without public intervention. On the other hand, the criteria of efficiency will not be met if large numbers of people have to be coerced into buying the firm's stock – which is effectively what happens when the government provides capital or subsidies to risk-takers. Presumably, one justification for such a policy is the existence of situations in which private risk-spreading – issuing stock or putting together consortia – is cumbersome, costly, or risky. In such cases, the large income gains to be had if the investment pays off may be judged to offset the compulsion involved in public risk-sharing. On the other hand, it is far from obvious that the government is able to do the job more deftly than even an imperfect private sector. As always, that the market fails does not mean government will succeed.[10] It follows that one useful goal for industrial policymakers is the removal of any legal or institutional impediments to efficient risk-spreading (provided removal is consistent with other policy goals, such as vigorous competition among the various members of an industry).

And more practical problems

Two somewhat less theoretical comments close this section's discussion of risk. The first is that, especially where large, once-only projects are involved, it may be hard to distinguish risk-aversion from strategic behaviour. Offering insurance protection to investors may induce perverse behaviour on their part (just as fire insurance may encourage arson, and unemployment insurance the consumption of leisure). Moral hazard of this sort is well known, though largely intractable. Thus, industrial policymakers may have difficulty distinguishing genuine reluctance to invest in a project from reluctance feigned for the purpose of extracting more favourable financial treatment from government. Of course, in a market that has many potential investors, this sort of behaviour is itself risky: the hold-out may well be displaced by other bidders. But where specialized knowledge or skills are involved or competitors face very long start-up times, then firms could conceivably extract unnecessary blandishments from governments anxious to appear to be creating jobs (see Usher 1981b).[11] Thus, compensation for risk-bearing may not be an easy policy to enforce. In fact, in view of the possibility of games-playing by firms, it may be preferable to adopt general compensation for risk-bearing – such as tax relief for all investors – rather than project-by-project inducements.

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[10] McFetridge is emphatic on this point: 'Conduct by the state of R&D projects which would not be undertaken in a market environment cannot be justified on the basis that the appropriate markets for risk-shifting do not exist. The absence of such markets may indicate that the costs of risk-shifting outweigh its benefits. There is no reason to believe that this will not also be true of state efforts to undertake this function' (1977, 19-20).

A final comment is simply that, so far as many private investors are concerned, risk is not inherent in technology or geography but is created by government. It is not necessary to credit many of the more extravagant claims concerning the effects of the celebrated oil-pricing dispute between Ottawa and Alberta to believe that the greatest uncertainties in many fields of enterprise are caused by an inability to predict public policies towards industry. A brief review of the recent history of the corporate income tax reveals only a few years during the last three decades in which tax rates, allowable accounting procedures, or both were not changed (Boadway and Kitchen 1980). Similarly, many textile producers have complained that uncertainty about the government's 1981 decision on whether to continue import quotas caused a three-year investment slump in the industry. A policy environment of this sort must cause investors to think twice before undertaking what they expect to be only marginally profitable investments. It would be ironic and wasteful if the government had to compensate firms for running risks that resulted mainly from uncertainty about its own behaviour.[12]

INFANT INDUSTRIES

Another argument for industrial policy that probably has more support among laymen than economists is that new industries should be afforded financial assistance, protection from foreign competition, or both. The idea is that having been helped to establish themselves in the domestic market during their early years, such industries will then be in a position to take on competitors in the world market. As Fred Lazar puts it:

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[11] This situation may exist in many of the megaprojects. Usher (1981b) argues quite convincingly that economic analysis simply is not capable of distinguishing incremental (that is, induced) investments from those that would have occurred without public assistance.

[12] At the same time, the difficulty of eliminating government-created risk is clear. Governments are under considerable pressure from the media, from the opposition parties, and ultimately from the electorate to try new solutions to problems. Almost by definition, this pressure forces frequent changes of policy.

> The principal goals of an industrial development strategy should be to create programs that will enable Canadian firms to capture a large enough share of the domestic market so that they will reach the critical size needed to compete successfully in foreign markets. If protectionist measures are necessary to increase the likelihood of achieving this objective, then they should be adopted. (1981, xvi)[13]

Arguments much like this one were used to justify the imposition of the National Policy tariff in 1879; as has been observed many times since, it remained in place until many of the industries in question were well into middle, if not old, age.

Despite the long history of the infant-industry argument, most economists remain unmoved by it. In their view, if an industry is going to be profitable in the long run, private entrepreneurs will foresee this and ensure its coming into being, and protection, subsidies, or technical assistance from the government will not be necessary. On the other hand, if the industry does not attract private investors, their avoidance of it signals that they estimate costs will exceed revenues in the long run. Unless those revenues do not reflect the overall benefits the industry would create,[14] investment in it would constitute a misallocation of resources. Thus, protection or subsidies would either be superfluous or indicate that the government does not trust the private sector's estimation of future profit. Since it seems unlikely that public agencies can do better than private investors in estimating an industry's future profitability, the argument then focuses on the possibility that the latter discount future returns excessively. In fact, as suggested in Chapter 4, the cost-benefit literature includes a long-standing debate on whether private agents pay insufficient attention to profits that will accrue in the distant future. But the assumption that only government is equipped to take the long view requires not just assistance to particular industries but economy-wide inducements to investment, for it means that all private decisions about the future, not just decisions about establishing new industries, are biased in favour of the present.[15]

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[13] Lazar goes on to say: 'But any such measures should be set for a limited time span, as they should not be intended to prop up inefficient firms and industries that cannot survive without continued protection and government support' (1981, xvi). Whether the political system is capable of sophisticated control of this sort is obviously open to question. As matters stand, inefficient firms and industries receive considerable protection.

[14] Which might be the case if it involved externalities or public goods, for instance.

An even more important problem with the infant-industry argument is the awkwardness of its internal logic. The intention is that today's protected industry will be tomorrow's competitor on the world market. But exposure to the world market may never come because other countries are likely to respond in kind to domestic protection. For instance, it is hard to think of an industrialized country in which high-technology industries are not now being given special consideration, much as steel, chemicals, and shipbuilding were in the 1960s and 1970s.[16] Once this protective web has grown up, it is difficult to tear down; unfortunately, in any prolonged war of non-tariff barriers, it is not the countries with small internal markets, such as Canada, that can be expected to prosper.

A final difficulty with the infant-industry argument is in understanding how manufacturers can be prepared for world competition without actually being exposed to it. What many observers propose, however, is a refurbishing of Canadian industry *before* it is opened up to competition from abroad. As Lazar puts it:

> Negotiations with the United States ... can only be seriously considered by the Canadian government when it has its own house in order; that is, when Canadian companies are in place, are well established *in most industrial sectors* and have the capability to compete in the international marketplace.... (1981, 81, emphasis supplied)

Or, as Britton and Gilmour argue:

> Canada is not in a position to entertain the risk of significantly altering its commercial stance as it applies to secondary manufacturing without prior refurbishing of its industrial capacity. (1978, 61)

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[15] This is not to concede the main point, however. It may well be that private decisions are not biased towards early payoffs.

[16] The recent history of these three industries provides dramatic evidence of the risk of investing heavily in areas where other countries are also investing. The great danger, obviously, is chronic excess capacity. High-technology enthusiasts should note that there is now apparently considerable excess capacity in the computer chip industry: 'In 1981, the microchip industry worldwide lost at least $500 million on memories. Some manufacturers doubt if anyone makes money on memories – or ever will' (*The Economist*, 26 June 1982, 93).

That Canadian firms could prepare themselves to take on the world by monopolizing their home markets for several years seems a fanciful idea.[17] Profit-oriented managers, if they are allowed a role in allocation, respond to the imperatives of the market to which they are now exposed, not the one to which they may be exposed at some uncertain future date. As a generation of researchers in industrial organization has demonstrated, the plant sizes and production techniques suited to the relatively small Canadian market may be entirely unsuited to the world market (see Green 1980).

Finally, once an industry has adapted to the demands of the Canadian market, political calculus suggests the inevitability of considerable opposition to any removal of protection. This fact may explain why our most highly protected industries are not infant but senesecent.

NATURAL MONOPOLY

Another rationale for public participation in industry is the existence of natural monopolies – that is, industries in which costs decline as scale, or output, rises. This essentially technological phenomenon has two implications. First, any firm that can steal a march on its competitors has an obvious advantage. It can slide down its cost curve as output rises, producing more cheaply than its smaller competitors, who experience higher costs simply because they are smaller. In the end, only one participant can survive such a battle.[18] Second, if the survivor of such a competition were to price its output so as to cover the cost of the resources used up in marginal, or extra, output, as required by the efficiency conditions described in Chapter 1, it would operate at a loss. Since the last unit of output comes more cheaply than those that preceded it, pricing the output at marginal cost would mean pricing most of it at less than cost. If the firm is to earn a profit, some averaging of costs has to take place. But then the price of the output does not reflect the cost of the resources used in its production and, therefore, gives the wrong signal to its users. Thus, intervention may be justified in the case of a natural monopoly.

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[17] It is as if a boxer could become heavyweight champion by skipping rope diligently.

[18] Of course, natural monopoly exists in some industries simply because it is technologically impossible for there to be more than one producer. For instance, only one hydroelectric dam can occupy a particular spot on a given river – though if a region has many rivers or one very long river or, indeed, access to coal, oil, or uranium, it need not worry about natural monopoly in electricity generation. The distribution of electricity is another question.

In three fields of economics – public finance, industrial organization, and regulation – the literature contains lengthy contributions on the appropriate treatment of natural monopolies (for a recent review, see Trebilcock et al. 1982), so there is no need here to rehearse the usual arguments for and against the various public policies to deal with them.[19] Suffice it to say that the phenomenon may not be as ubiquitous as may be thought. For instance, while hydroelectric generation may well involve natural monopoly, a significant amount of competition probably exists in the energy industry as a whole, and possibly also in electricity supply once the various other forms of generation are taken into account. Similarly, while local telephone service exhibits many characteristics of a natural monopoly, at least one recent study concluded that long-distance communication has significant potential competition, and that the development of the coaxial cable may soon produce vigorous competition even in local communications markets (Economic Council of Canada 1981).

The market failure–government failure argument remains relevant in cases of natural monopoly. To justify government action, it is not sufficient to show that privately run natural monopolies cause inefficiencies in allocation; it must also be demonstrated that public regulation, ownership, or subsidization of the industry can bring about a better allocation. No doubt it can in many instances. In others, however, leaving the monopoly in private hands – with the implicit or even explicit threat that action will be taken if abuses occur – may be the preferable course. The often quite considerable costs and potential inefficiencies of regulation and public ownership are well known. The difficulty of deriving optimal tax and/or subsidy programs for the manipulation of natural monopolies is also substantial.

The final and most telling point is simply that the theory of natural monopoly is hardly a strong foundation on which to build an elaborate industrial policy. Although some natural monopolies may have had and continue to have important effects on economic development,[20] the problem of natural monopoly remains essentially separate from that of industrial policy.

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[19] One intriguing proposal for dealing with natural monopoly is that a charter of monopoly be sold to the highest bidder. If there were a sufficient number of bidders, the government could be reasonably certain that the entire monopoly profit would be bid away, for it would always pay bidders to give up just a bit more profit in order to get what remained. The eventual winner could thus be expected to earn close to a competitive rate of return. If the natural barriers to entering the industry were high, however, and only a few firms were interested, any such auction would be plagued by problems of bluff and counter-bluff.

[20] Railways, which have some of the attributes of natural monopoly, were obviously critical to Canada's economic development.

OPTION-VALUES

Two decades ago, the American economist Burton Weisbrod (1964) argued the existence of a strong case for public participation in the production of goods whose supply, should it ever be curtailed, would be difficult to restore. His principal example was the national park, which, once paved over, is lost, presumably forever. Weisbrod argued that such goods, in addition to creating value for anyone who uses them, bestow benefits on people who have the option of using them but never exercise it. Since these 'option-values' are not reflected in private suppliers' revenues, they might decide to stop the supply altogether, even though the total social benefits of continuing in operation might exceed their total costs.

This argument has some relevance to the debate on industrial policy. Governments may well wish to sponsor skeleton operations in industries that would assume critical importance during periods of national emergency. A munitions industry, for instance, would be difficult to develop from scratch on short notice.[21]

Once this point is granted, the question is an empirical one: how much public support is necessary in order to attain a critical mass in various industries? In many instances, the answer is likely to be very little – if any. In many strategically important raw materials, Canada has self-sufficiency several times over and would have even if all public assistance were revoked. The same is true of many manufacturing processes. Despite often-heard laments, many parts of Canadian industry, even its high-technology sectors, would probably continue to thrive even if publicly sponsored life-support were withdrawn. Several studies of both bilateral and multilateral free trade for Canada argue that increased access to foreign markets would be a greater boon to our manufacturing industries than to many of the other industries in which we have a more obvious comparative advantage. The reason is that large-scale export sales would permit full exploitation of the economies of size and of long production runs.

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[21] On the other hand, establishing self-sufficiency even in the most critical industries can be a prohibitively expensive proposition. After a strike in the Pennsylvania coal fields shut off US exports to Ontario in 1922–23, Parliament debated at length the possibility of Canada's adopting a national fuels policy. Ultimately, it decided not to provide the substantial transportation subsidies that would have been required to make Alberta's and Nova Scotia's coal competitive with the US supplies. As John McDougall has it: 'Only a sustained and severe shortage of fuels would have brought about the sacrifices necessary to supply Ontario from Alberta and Nova Scotia continuously' (1982, 53).

In sum, the option-value argument is probably not much help in understanding existing industrial policy.

Merit goods

A final argument often used to justify public intervention in or supersedence of market processes is that, while people know their likes and dislikes, they cannot be trusted to like or dislike what is good for them. The literature refers to goods that people should buy more of than they do as 'merit goods'. The merit-goods argument holds simply that people consume too few of the goods that are good for them and too many of those that are harmful.

Most economists blanch at this sort of argument, believing as they do that consumers are and should be sovereign. They also object that unless consumers are allowed to learn by trial and error what is good for them and what is not, they soon lose all self-reliance. The merit-goods idea also offends the individualistic underpinnings of most welfare economics. Thus, with a possible exception for addictive goods (which turn any theory based on the idea of consumer sovereignty into sham), the honouring of consumers' preferences is the over-riding reaction of most economists.

These propositions are relevant here insofar as supporters of an active industrial policy argue that there are many activities that a nation must encourage even in the face of public indifference or hostility. The apparently widespread view that manufacturing *qua* manufacturing is desirable has already been mentioned (see Chapter 4). Other industries also appear to be necessary to a nation's self-respect. The tragic tendency of developing nations to furnish themselves with national airlines before many of their citizens have obtained the most rudimentary coveniences of modern life is well known.[22] In much the same way, the federal and many provincial governments evidently believe that no nation can call itself civilized that does not have a home-grown film, recording, or publishing industry. That Canadians apparently avoid the subsidized artists, performers, and writers in droves counts but little with the cultural policy-makers. A final example of attempted justification by the merit-goods argument is the provision of elaborate and expensive broadcasting services to an audience that, the viewer and listener surveys suggest, is composed mainly of intellectuals and prisoners of geography.

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[22] Diebold (1980) refers in this context to the 'glamour quotient'.

CONCLUSION

Though it is obviously difficult to summarize a chapter that in many ways is already a summary, the following are among the more important conclusions to be drawn from what has been said:

- While government may have a theoretical role in spreading and pooling private risks, it exists in practice only if the government can be counted on to do a better job than the many different private institutions that regularly engage in these activities. Since private agents often have to act on the basis of highly imperfect information and incur heavy transactions costs in doing so, the market may well fail to provide an ideal amount of risk-offset. On the other hand, proponents of public intervention must explain why the government can be expected to avoid similar difficulties.
- The infant-industry argument, much honoured in the past, is but a special case of arguments claiming other forms of market failure.
- The problems posed by natural monopolies and option-values may sometimes require government attention, though they are hardly likely to warrant a full-scale industrial policy.
- Finally, the merit-goods argument carries little weight with most economists, who regard it as the last refuge of the self-interested.

6

Industrial policy and the problem of the second best

Though they are not labelled as such, the first five chapters of this book are a summary of what economists usually refer to, in a characteristically obfuscatory phrase, as 'welfare economics'. The phrase denotes not the economics of the social welfare system, but the economics of how to create well-being. As suggested in Chapter 1, a standard proposition in welfare economics is that so long as the current distribution of income is acceptable and the economy has a tolerable amount of competition, a market system can assure that the prices of goods and services reflect the costs of the resources needed to produce them – the situation that must exist if an optimal allocation of resources is to be attained. In the last two decades, however, some writers have developed a powerful critique of these propositions, a line of criticism that is known as 'the general theory of the second best'. The purpose of this chapter is to examine its implications for industrial policy.

THE THEORY OF THE SECOND BEST

As the last three chapters have suggested, markets can fail in many ways. Although there are also many ways of patching up market failures, albeit in a rough and ready fashion, some probably cannot be repaired. For instance, a private monopoly or a minimum wage law – both of which prevent the prices of the goods or services in question from reflecting their true costs – may be hard to remove for political reasons. Or technological difficulties of the sort that give rise to natural monopolies, public goods, or externalities may be difficult or even impossible to overcome.

A natural reaction to unavoidable market failure is to assume that so long as efficient, market-style pricing is practised in all the economy's other markets, society may not have the *best* possible allocation of resources, but it can have the *second* best. Doing the efficient thing in all markets but one is surely the next best thing to universal efficiency.

To the great regret of policymakers, whose lives would be much simplified by such a rule, it is generally not true. As Richard Lipsey and Kelvin Lancaster demonstrated in a justly famous article written in 1956-7, whenever market failure exists in one sector of the economy, deliberate departures from market pricing in other sectors are generally needed to improve the allocation of resources. This phenomenon obviously complicates the search for an optimal allocation of resources, for unless a society can eliminate all market failures, quite elaborate public interventions may be indicated.

Perhaps an example can help to explain these propositions. Suppose that, for one reason or another, the government subsidizes passenger travel on the railways. As a result, rail service is likely to be oversubscribed; people who value a train trip at, say, $2.00 purchase it, even though the resources that go into providing it cost, say, $5.00. The government makes good the $3.00 difference between what the traveller is willing to pay and what the ride costs. In economic terms, this policy is clearly wasteful, since relatively high-value resources are being used to supply relatively low-value services.

The problem of the second-best is this: if the subsidy to train travel is politically untouchable, what is the appropriate public policy towards other forms of transportation – buses, for instance? The standard market rule suggests that if it costs, say, $1.00 to provide an extra bus trip, then the price of bus travel should be $1.00. According to the theory of the second best, however, this procedure is correct only in the absence of a subsidy to train travel. With the subsidy in place, the way to achieve a net saving of resources is to subsidize bus travel as well. Although a subsidy to bus travel will cause resources to be wasted in the bus industry (travellers will take the trips although they value them at less than what it costs to provide them), this waste may be less than what is saved in the train industry by inducing travellers to switch to the bus. Suppose that travellers are completely indifferent to the two means of transport at a price of $2.00 per train ride and $1.00 per bus ride. In other words, the additional comfort or convenience afforded by the train is worth exactly $1.00 to them. In that case, reducing the price of bus travel to, say, $0.75 will cause people to switch from the train to the bus. What net gain or loss of resources will result from this switch? The waste of resources in the bus industry will be $0.25 per trip, while the gain in resources no longer wasted in the train industry will be $3.00 per trip. The net gain is $2.75.

Extending this example, the general rule is that in the presence of existing market failure, further market failure may be optimal.[1] Reasoning along these lines has often been used to rationalize industrial policies of one kind or another, though since the general theory of the second best is not the stuff of normal political discourse, its invocation has usually been serendipitous. At least an instinctive grasp of it, however, is shown in the following statements:

- Because the tariff concentrates manufacturing in central Canada, the country's outlying regions deserve industrial assistance from the federal government or should devise their own programs for industrial development.
- Because the minimum wage raises the price of labour and causes unemployment, labour-intensive firms should receive public subsidies and workers should be prepared for them in publicly sponsored retraining programs.
- Because the government puts a duty on imported textiles, it should also protect the clothing industry (see Canada 1980).
- Because the government underprices road travel by not charging users for roads or their maintenance, it should also subsidize air and rail travel.
- Because the government subsidizes some industries, it should subsidize all industries.

Whether any of these propositions deserves support is an open question. The important point here is that the theory of the second best strikes at the heart of the mainstream economist's prescription for maximizing welfare, which is that the market should generally be allowed to work. It is not surprising, therefore, that the profession has responded vigorously to this line of criticism.

WHY SETTLE FOR SECOND BEST?

The first objection to second-best theory is empirical. If market failure is endemic in the economy, then pursuit of a second-best allocation of resources may well require considerable overhaul, perhaps even large-scale displacement, of market processes. On the other hand, if market failure is relatively rare, then a second-best outcome might be had with only relatively minor tinkering. (Even third best – the status quo – may not be so bad.)

[1] For an elaboration of second-best cases and prescriptions, see Boadway 1979.

That this question is empirical does not mean it has an easy answer. While many economists see the economy as a broad expanse of fairly efficient allocations, relatively smoothly achieved, with only a few islands of market failure, many others see precisely the opposite. What is especially frustrating to the disinterested observer is that the data do not easily offer confirmation of either view. For instance, although theory suggests the distinct possibility that monopoly firms will experience inflated profits, it is notoriously difficult to infer from corporate revenue data the extent of the efficiency losses monopoly power causes. Moreover, even where it seems reasonable to expect problems of public goods and/or externalities, the nature of nonmarketed benefits and costs makes their magnitude difficult to estimate. Thus, even the apparently simple problem of deciding whether markets are working or not is, in fact, quite difficult.[2]

Even it can be decided that a first-best allocation has not been reached, the empirical difficulties are only beginning. The attending economists are then faced with a nettlesome problem. Should they attack the market failure directly and try for first best? Or should they accept the market failure as a constraint and settle for second best? That many of the market failures standing in the way of first-best solutions are artificial contributes to their agonizing. For instance, in the train-bus problem, most economists would find it hard to understand why train travel has to be subsidized and, therefore, why they are asked to treat side effects rather than look for a cure for the basic misallocation. They can satisfy both their consciences and their preference for first best by pointing out to their political masters the substantial reduction of welfare that legislated market failure may cause. Should those superiors prove unsympathetic, however, then the economists' recourse is either to resign or to begin looking for a route to the second-best allocation. Those who decide to stick it out are bound to feel like the travel agent who helps his true love plan a honeymoon she intends to take with someone else.

IS SECOND BEST POSSIBLE?

The difficulties of intervention

Another difficulty with a second-best industrial policy is that, like all policies, it is liable to government failure, the more so because too much intervention makes matters worse. In the train-bus case, for example, a subsidy of $0.25 per bus trip would create a net social gain. A more generous subsidy, however, might well encourage too many people to take the bus, thus producing a social loss. At some stage, certainly, the waste from people's taking bus rides that they value at less than cost can be expected to exceed the benefits to be had by discouraging their taking train trips that they also value at less than cost. In other words, since the cure, if carried too far, can be worse for the patient than the disease, salutary second-best policies require calcultations that probably can't be done.

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[2] Of course, where market failure is the expressed intent of public policy – as is the case with agricultural marketing boards, for instance – matters may be much simpler.

What is more, even when the cure takes, it can be expensive. A second-best intervention requires calculation of the optimal subsidy. That requires detailed information about the demand and cost curves for bus, train, and all other substitute means of transportation, as well as the cross-elasticities of the demands for these services (that is, the shifts in travel patterns likely to be induced by changes in their relative prices). In 1922, Clapham pointed out that economists are notorious for solving problems by using information that does not exist. Unfortunately, even the considerable improvement in statistical technique over the last several decades has not cured them of this habit. Calculating a second-best arrangement for the different forms of transportation within a small region would be hard enough. Deciding how best to adapt to an economy-wide minimum wage or an equalization or regional development program would require detailed consideration of an enormously larger number of factors. In most areas, hard data simply do not exist. Most economists would probably agree that, for the time being, such analyses must remain largely a matter of conjecture. While it is relatively easy to establish the theoretical case for the second best, the routine development of second-best policies – or even third- or fourth-best policies – is obviously far off.[3]

Political difficulties

A second reason for supposing that second-best theory may be difficult to apply in the real world is that those who benefit from the constraint that makes the first-best solution unattainable may also oppose second-best remedies. In fact, they may not permit economic efficiency to become a criterion for decision-making until the third or fourth pass at allocation, if then. For example, in the train-bus problem, the purpose of the second-

[3] In a study of the effects of tariff protection on one hundred Canadian manufacturing industries, Hazledine concludes that even application of the theory of the second best is unlikely to 'transform the chaotic world of uneven tariff incidence... into an orderly scene of economic rationality' (1981, 67).

best policy is to get resources out of the train-travel industry and into the bus industry – in effect, to undo the allocational effects of the subsidy to trains. But in lobbying for the original subsidy, the railways were presumably seeking to assure their profitability. Once the subsidy is in place, any reduction in the demand for train travel will reduce their profits, which is sufficient reason for them to oppose subsidies to bus travel. If the railways are politically strong enough to garner a subsidy in the first place, they are presumably strong enough to block measures that would reduce the benefits they derive from it.

Several real-world examples of this dilemma are obvious. If the manufacturing industries of central Canada are the principal beneficiaries of the Canadian tariff and it causes relatively cheap resources to flood in from the outlying regions of the country, these industries are hardly likely to welcome regional development policies whose effect is to encourage resources to stay where they are. Similarly, if the government's response to requests for aid to one industry is, more or less, to provide aid to all industries,[4] such a policy, though possibly efficient, may largely negate the effects of the original subsidies. The citizens involved in any given industry are unlikely to be satisfied by aid whose ultimate effect is to divert resources from their industry. Thus, if the first-best allocation is unattainable for political reasons, policies whose intent is to duplicate it may also be unattainable.

A related difficulty is that even if economists are allowed a say on questions of allocation, many of their second-best prescriptions may seem so anomalous to the public that they will never see the light of day. For instance, in the train-bus example, suppose that the difficulty is not that train travel is subsidized, but that a private monopoly or – perhaps more likely in this day and age – a publicly sponsored marketing board has decided to restrict the supply of train rides by raising their price to a level that exceeds cost. In this case, the appropriate second-best solution is a public policy that encourages resources to flow to the railways. This goal is accomplished most easily by raising the price of bus travel – by taxing it, for instance. The waste in the railway industry has arisen because the high price of train travel discourages potential travellers from taking trips that they value at more than the cost of providing them. Taxing bus travel would cause similar waste, of course, but second-best theory suggests that it might be less than the waste increased train travel would eliminate. Faced with a monopolistic price for train travel, however, the average traveller is unlikely to respond sympathetically to a tax on bus travel.

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[4] As, indeed, a brief review of existing industrial policies might suggest.

Governments that use their time on the hustings to explain the rudiments of second-best theory are not likely to fare well on election day.

In sum, while propositions about the second best provide a legitimate theoretical rationale for various forms of industrial policy, their real-world practice faces formidable difficulties. Moreover, the economist is likely to be asked to find only third-best, fourth-best, or worse solutions. Presumably, there is some number, n, such that a request to seek the nth-best solution will cause him or her to withdraw altogether from the policy process. For many economists, $n=2$.

'THEY DO IT! WHY SHOULDN'T WE?'

Another argument for the second best often used to justify public interventions in industry runs as follows: agreed that the world would be a better place without such interventions, but because other jurisdictions have chosen to use them, the home jurisdiction is forced to follow suit.[5] Such reasoning is particularly common in arguments about the optimal protection for domestic industry.

These days, protection takes many forms, ranging from traditional tariffs and quotas to non-tariff barriers of various kinds, including nuisance regulations[6] and preferential government procurement. Although the whole question of protection is perhaps better suited to a discussion of appropriate commercial policies, it has been a favourite tool of Canadian industrial strategists, so several comments on it seem appropriate here.

Restrictions on foreign trade

To begin with, a unilateral restriction of trade often does greater harm to its perpetrator than to its intended victim. In such a case, the appropriate response to other governments' intervention may well be to do nothing. Studies of the effects of tariffs and quotas on textiles and clothing, for instance, suggest that such measures inflict net losses on Canadians *regardless of the response of other countries*. Jenkins 1980a concludes that for 1979 alone the loss per job saved by the protection of that industry was $34,500. Since the average income of Canadian textile workers in the same year was $10,000, all those who would have lost their jobs if protection had been removed could have been paid two or even three times their real 1979 incomes for the rest of their lives, and there would still have been something left over for consumers. A final twist to this story is that since the restrictions on textile imports raised the import prices of Canadian clothing manufacturers, the effective rate of protection for clothing was lower than the official rate suggested and the clothing tariff had to be raised to offset this effect.[7] Whether protection's disciplinary effect on other countries compensates for the damage it does at home is hard to tell.

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[5] For example, the official explanation for the federal government's program of export assistance, introduced in January 1980, was that the OECD-sponsored gentlemen's agreement on export financing had broken down. It was this program, incidentally, that made Bombardier's successful bid for New York City's subway-car business possible. The risk inherent in such policies is well illustrated by the reaction to the Bombardier deal in the United States Congress ('Foreign moves convince Ottawa to subsidize exports', *Toronto Globe and Mail*, 25 May 1981).

[6] In the summer of 1982, for instance, tighter federal inspection regulations effectively impounded several thousand Japanese cars in West Coast ports. The federal minister of state for trade said the new regulations were ordered because of a deadlock in trade negotiations with Japan: 'Until we reach a settlement, I felt we had no alternative but to provide some relief for the domestic industry' (*Toronto Globe and Mail*, 2 June 1982).

A second objection to retaliatory protection is almost too obvious to be mentioned. Its proponents usually argue that imports are attractive to domestic consumers only because foreign governments subsidize them. If this claim is true, most economists would respond, 'So much the better! If foreign governments insist on sending us aid in this way, we would be silly to decline the offer.' To cite but one example, Canada should probably respond to other countries' subsidized export of computer chips not by introducing subsidies of its own, but by developing products that use these chips as imports.[8]

A third difficulty with the idea that other countries' trade barriers justify intervention is that the danger of escalation is seldom fully appreciated.[9] On the contrary, most of those who request protection often seem to assume that other jurisdictions will not respond in kind. Perhaps they

[7] In fact, Canadian clothing manufacturers have proposed that they be allowed to import textiles free of duty, much as auto manufacturers can bring parts in free under the Auto Pact. This is one instance, however, in which the average consumer may conclude that half a loaf would be no worse than none (see Canada 1980).

[8] Whether the government would have to direct this effort – or entrepreneurs could be left to catch on to the idea by themselves – is obviously a separate problem.

[9] Occasionally the casual link seems to be lost sight of entirely. In the spring of 1982, Ontario premier William Davis argued that the United States' Buy-American policies give Canadian companies 'virtually no chance at all to provide American governments with the best value for … their spending dollar'. In the same speech, Mr. Davis also said: 'The Government of Ontario itself

hope that, as often happens, retaliation will occur in *other* sectors of the economy. Or they may simply realize that once they have adopted the high-cost production techniques suitable for the small Canadian market, export markets will be largely lost to them anyway. Like shooting wars, however, trade wars can easily cause damage that is ultimately many times greater than what was at stake in the early stages of confrontation.

In this regard, the United States' recent decision to adopt stand-by measures of protection to be invoked whenever its trading partners impose restrictions is probably a useful contribution to the cause of commercial peace, in spite of the bad press it has received in Canada. By making the costs of protection explicit, the United States has created a clear deterrent to a first strike by potential commercial adversaries. If other nations would similarly arm themselves, a balance of deterrents might well evolve. Of course, the disadvantages of living with a powerful response mechanism set on a hair trigger are well known: a conflagration would obviously cause catastrophic losses. Unfortunately, many of the proponents of aggressive negotiation apparently have the same view of trade weapons as Dr. Strangelove had of nuclear weapons – that they work best when they are used often, enthusiastically, and pre-emptively.

Restrictions on interprovincial trade

Whether or not the federal government should pursue 'optimal tariff' policies with respect to the rest of the world, it is hard to see any theoretical justification for the provinces' applying such policies at each other's expense. The classic rationale for free trade between nations is that it can produce an allocation of resources that maximizes *world* output. But national governments have a different goal – each seeks to maximize the incomes of its *own* citizens (see Brecher and Bhagwati 1981). From a national perspective, the appropriate weight of the benefits and costs that domestic policies cause other countries is zero. When policies that cause losses to other Canadians are at issue, however, the free trade argument is compelling. Whatever a provincial government may think, it is hard to see how dollar benefits or costs to Canadians who live outside that province can be discounted to less than face value. In fact, a possible definition of a country is that it is an area in which benefits and costs to others are *not* discounted. The wisdom of many provincial industrial

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awards a 10 percent preference for Canadian content in goods purchased by the public sector. Further, and I make no apologies for it, we are currently lobbying our federal government vigorously to place tighter restrictions on the import of Japanese cars (*Toronto Globe and Mail*, 14 April 1982). That these statements are not necessarily inconsistent may be lost on non-Canadian audiences.

policies, whose purpose clearly is to win business away from other areas of the country, must, therefore, be questioned. The effect of constant bidding among provinces for the favours of multinational corporations is mainly to enrich those corporations at the expense of Canadians, with little or no gain to the country as a whole. Similarly, although it should be a matter of indifference which Canadian corporation sells services to which Canadian province, most provinces have laws requiring preferential treatment for local bidders on public contracts (Pestieau and Maxwell 1980). The ultimate effect of such policies is to drive the provinces towards autarky, which is arguably not a reasonable status even for jurisdictions among which there is no fellow-feeling and is certainly inappropriate for jurisdictions of the same country.

At the same time, one must realize the existence of political pressures favouring provincial intervention. Principal among them is that the federal structure encourages provincial politicians to see out-of-province interests as having no importance because they carry no weight in local elections.[10] Unfortunately, the new constitution's lukewarm provisions for the freedom of interprovincial trade and of migration may well give domestic free trade even less protection over the next few decades than the not-at-all lukewarm provisions of the BNA Act did during the first century of the country's existence.

CONCLUSION

The theory of the second best obviously constitutes a powerful critique of the economist's normal presumption that the resource allocations and prices that emerge from market processes are likely to be efficient. On the other hand, it does not mean that any and all departures from market pricing will do. Effective second-best policymaking requires careful examination of many different bodies of data. In view of the imperfections of our knowledge of economic behaviour and of the institutions that are obliged to act on this information, it probably is wise to remain skeptical about the prospect of any early success for second-best policymaking. This argument gains force from the fact that too much of a second-best policy can itself be inefficient.

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[10] The day is presumably past when money flowed from one province to another during provincial elections, as it did in large amounts between New Brunswick and the Province of Canada in 1866 (Creighton 1952).

7
Winners, losers, and compensation

As suggested in Chapter 2, the principal virtue of a market system of allocation is that it can be expected to produce the greatest output possible, given the resources, techniques, and trading opportunities currently available to the economy. (The analysis must, of course, take into account difficulties of the kind described in Chapters 3 to 6.) Unfortunately, as technology and trading opportunities change, continued maximization of output often requires that some individuals suffer losses in well-being. Although, in principle, such losses are usually less than the gains they make possible, they are no less palpable for it. At least in the short run, the average blacksmith was hurt by the invention of the automobile. Similarly, the dramatic increase in world trade in textiles after the Second World War undoubtedly inflicted net losses on those Canadians whose jobs it eliminated.[1] The purpose of this chapter is to suggest that, both for theoretical and practical reasons, advocates of market processes cannot ignore the plight of those who may be harmed by economic change.

COMPENSATION AND OPTIMALITY

Mainly because it is such a difficult problem, economists often tend to gloss over the fact that even changes that could make everyone better off immediately – provided a redistribution of benefits from winners to losers took place – may reduce some people's well-being. This is not to suggest that economics has ignored the problem; quite the contrary, what to do about losers has been the subject of lengthy debates in the literature.[2] But the problem often gets short shrift when it comes to recommending policies. In general, economists often seem to think it sufficient to demonstrate that their recommendations will increase output (see, for instance, McFetridge 1977). While increased output does create the possibility that no one will be worse off after it is redistributed appropriately,[3] that such redistributions are seldom made leaves the economist in an ethical no man's land. It may be comforting to know that change will make possible a clear improvement provided such-and-such happens, but this is hardly a ringing endorsement for change if the other shoe never drops. What is more, if the shoe does not drop, such policy prescriptions likely have little chance of being adopted.

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[1] The short-run nature of these losses should be emphasized. Most currently unemployed persons are neither ex-blacksmiths nor ex-textile workers. Of course, what are relatively short-term costs for an economy can leave serious scars on individuals.

The first difficulty with policies that hurt people is largely theoretical. The economist's concern with maximizing output originates explicitly with a desire to effect only those changes that leave at least someone better off while making no one else worse off. This presumably unobjectionable normative axiom is widely held to lend scientific status to the prescriptions that emerge from the economist's study of welfare economics.[4] It is hard to understand how such changes can commend themselves, however, unless losers are fully compensated for their distress. If compensation is not paid, it remains to be decided whether winners' gains offset losers' losses. It is certainly not the economist's job – and it probably should not be anybody else's – to make such judgements.[5]

However telling its theoretical impact, this failure to attend to the interests of losers is also of considerable practical importance. The reason is that, at least in any non-Stalinist state, the prospective losers from economic change are likely to organize to try to prevent it. In many instances, the gains from change, though large, are widely dispersed, amounting to a few dollars per citizen, while losers face the prospect of very large losses.[6] For example, as noted in Chapter 6, one estimate of the potential gain to Canadian consumers from eliminating protection of the domestic clothing and textiles market is roughly $20 per year per man, woman, and child (Jenkins 1980a). Similarly, the gain from deregulation of the dairy industry has been estimated at $29 per head and that from deregulation of egg production at $24 per head (Economic Council of Canada 1981). Multiplied by the population, each of these gains would come to an amount significantly larger than the offsetting losses to producers in the industries in question. On the other hand, such losses would likely represent a substantial proportion of the producers' incomes.

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[2] See especially Scitovsky (1941). For an economic analysis of Canadian adjustment policies, see Saunders (forthcoming).

[3] In the language of welfare economics, it has often seemed sufficient to show that a Pareto improvement (see Chapter 2, note 4) is possible, not that it actually takes place.

[4] In a telltale, though typical, phrase, Wilson (1980) refers to the conditions under which there are 'scientific grounds' for recommending an increase in Canadian oil prices.

[5] This is not to say that the economist cannot do useful work *describing* the redistributional effects of prospective policy changes.

This disparity in the importance of change to individuals is one reason potential losers are often more successful than potential winners in their attempts to win political friendships. It is worth noting, however, that if losers can block change by using the political system, prospective gainers can clearly serve their own interests by making sure that losers are mollified. Thus, compensating the victims of economic change is one of those (sadly rare) activities in which what is right is also politic.

THE COMPENSATOR'S DILEMMAS

Unfortunately, the idea of paying compensation to the victims of economic adjustment presents several difficulties.

The first is that a census of losers may often be hard to arrange. They may be very numerous. They may also include many people who suffer losses that are not immediately obvious. The bankrupt and the unemployed are usually highly visible, but people who suffer lower wages or profits or an increased chance of unemployment as a result of economic change may be more or less anonymous. These losers, who are termed inframarginal, are losers nonetheless and deserve compensation as much as anyone else (see Cassing 1980).

A second difficulty is that many of those who are hurt may be relatively affluent before the change and, in fact, may still be affluent, though less so, after it. While compensation for such people causes the economist no ethical dilemmas – a loss is a loss is a loss, in the profession's view – it probably does cause problems for politicians. Whether economic theory should condone change so long as it does not disadvantage people whose incomes are low is obviously a question that has no easy answer.

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[6] In Chapter 2, it was suggested that the *benefits* of various policies would be highly concentrated; here the argument is that *losses* may be concentrated. It is the policies under consideration, not the story, that has changed. In the earlier chapter, the policy change in question was the introduction of restrictive regulations, while here it is their removal.

Of course, if a change that brings net benefits has concentrated benefits but diffuse costs (as may be the case with many technological changes), then the only argument for compensation is the ethical one, for the change is likely to meet with no effective political opposition.

A third reason for supposing that compensation programs may be difficult to manage is that paying for losses resulting from economic change may actually increase those losses. The problem here is moral hazard, which bedevils all insurance plans (see Chapter 5). In the present context, it means that people who would stay in an industry in the absence of inducements to leave it may change their minds if compensation is offered to those who declare a loss and leave. In fact, the claims of such people may well consume the entire economic surplus that the economic change produces. Thus, in designing compensation programs governments should make – and stick to – their own estimates of the economic losses resulting from a change and use them as a guide in placing upper limits on either the total amount of aid to be handed out or the amount any individual may receive under the program. Of course, trying to prevent the undeserving from getting help runs the risk of excluding those who really do need it. The dissatisfactions of people who are passed over in this way are likely to be given vent in the political process.

Yet another problem is that if compensation is paid out of public funds, the loss is not eliminated but merely transferred from the victims to taxpayers in general. To be sure, the utility loss inflicted by many small dollar losses may be less than would result from a concentrated loss of an equal number of dollars. But that is always true when risk-spreading takes place. The important question is the extent to which the government should involve itself in *compulsory* risk-spreading by means of the tax system. There is obviously no easy answer.

Shifting losses

Several of the problems referred to in the last few paragraphs can be illustrated with the help of Table 7, which shows the effects on winners, losers, and taxpayers of various compensation schemes for dealing with a given economic change – perhaps removal of the tariffs and the import quotas on textiles and clothing. Without the introduction of compensation, the policy change brings a $10-million gain to its beneficiaries and inflicts a $5-million loss on its victims. Those who argue that economic changes should be permitted whenever benefits are greater than costs would approve this change even if no compensation is paid (case 1). On

TABLE 7
Effects of hypothetical compensation-for-change schemes
(in millions of dollars)

	Effect on economic status of			Allocation effects	Net effect on society
	Winners	Losers	Taxpayers		
1 No form of compensation	+10.0	-5.0	–	–	+5.0
2 Public compensation; no moral hazard; non-distorting taxation	+10.0	–	-5.0	–	+5.0
3 Public compensation; moral hazard exists; non-distorting taxation	+10.0	+2.5	-7.5	–	+5.0
4 Public compensation; moral hazard exists distorting taxation	+10.0	+2.5	-7.5	-2.5	+2.5
5 Compensation paid by winners; no moral hazard; zero cost transfers	+5.0	–	–	–	+ 5.0
6 Compensation paid by winners; moral hazard exists; zero cost transfers	+2.5	+2.5	–	–	+5.0
7 Compensation paid by winners; moral hazard exists; costly transfers	–	+2.5	–	-2.5	0

the other hand, those who believe that only changes that do not hurt anyone deserve the economist's sanction would require that losers be compensated before the change takes place (cases 2–7). Two general types of compensation scheme can be imagined – those in which the government foots the bill (cases 2–4) and those in which the beneficiaries of the change must compensate its victims (cases 5–7). The first type of scheme shifts the burden of loss from victims to taxpayers, while the second creates the possibility that the policy will leave no one worse off.

Case 2 shows what happens when compensation is paid by taxpayers and the payment of compensation neither induces people to overstate their losses (that is, there is no moral hazard) nor causes any other misallocations in the economy (as might be expected if, for instance, the taxes that finance compensation cause a change in the allocation of resources). The winners still get $10 million, but the loss to the losers is shifted to all taxpayers. While widely spread losses may be preferrable to concentrated losses (see Chapter 5), the contemplated change does cause a loss and thus cannot be approved within any ethical system that requires that no one lose as a result of change.[7]

In case 3, moral hazard exists, so the 'losers' gain 'at the taxpayers' expense, by being over-compensated for their losses. Moreover, if raising the revenues with which compensation is paid creates economic inefficiencies elsewhere in the economy – as is likely – then this loss must be included in any reckoning of benefits and costs (case 4).[8]

When compensation is paid directly by the beneficiaries of change, changes can be effected that do not create losses. In case 5, the gain to the beneficiaries is reduced by the $5 million necessary to compensate the victims, yet enough is left over to make the change attractive to prospective winners. Moreover, even when moral hazard means the victims actually benefit from change, change can occur without loss (case 6). As the costs of moral hazard rise, however, and/or the transfer of dollars from winners to losers itself consumes dollars, compensating victims may exhaust the entire gain from change (case 7), even if their true losses are a relatively small fraction of the overall gain. In this case, the prospective 'winners' may decide the change is simply not worth the candle.

Of course, the real world is considerably more complicated than this example suggests. Reliable information about the extent of gains and losses and even the identity of authentic winners and losers is hard to come by. The chances are great that fraud, games-playing (even by legitimate losers), and simple information-gathering will use up a large part of any economic surplus that change creates. These problems obviously make it less likely that victimless change can take place. One possible conclusion is that governments should be very careful in establishing specialized adjustment assistance programs. Indeed, they may well prefer to provide only the most general 'safety-net' income insurance. It can also be argued that inframarginal losers, whose situation is not likely to be desperate, can be left to fend for themselves. An even more extreme conclusion is that society neither can nor should attempt to indemnify its citizens against all losses that may result from change.[9]

[7] Of course, if the benefits of the prospective change accrued in proportion to individuals' tax payments, taxpayers might have net gains. But this situation seems unlikely for most economic changes.

[8] The $2.5 million inefficiency loss on revenues of $5 million that appears in case 4 is, of course, arbitrary, but is not out of line with a recent estimate that puts the cost of raising an extra $1.00 of public revenue at $0.46 (Usher 1982).

[9] Another conclusion is that not all change is worth the effort. Governments would be wise to forswear industrial fine-tuning and concentrate on changes whose benefits outweigh costs by so much that virtually no amount of slippage could reverse the balance. Table 7 may create the misleading impression that there are few such cases. In fact, since the benefits of change usually last a long time while its costs may be temporary, many projects may have large net gains.

THE NEED FOR SPECIALIZED COMPENSATION

Despite the many problems posed by specialized adjustment assistance programs, the point remains that when compensation can be made to work, it does provide an ethically and economically justifiable foundation for public policy.[10] Moreover, the contrary view that compensation programs should not be tried unless they can be made to work smoothly serves mainly to reduce the likelihood that market processes will be allowed any role in allocating resources.

On a theoretical level, the first four cases described in Table 7 require policymakers to choose between hurting losers by permitting change and hurting winners by preventing it. When such a choice is unavoidable, the policymaker may opt for the lesser loss – in this case, allowing the change. This decision may provide justice of a sort, but it is certainly rough justice. By contrast, fully compensated change would ease the policymaker's conscience.

On the practical level, the most compelling argument for compensation is that whichever way the decision goes, losers cannot be counted on to submit quietly to their loss.[11] Better, from the economist's point of view, that they be compensated for it – especially where the long-run gains are large – than be granted a veto over change.

A final point favouring compensation is that great concern often exists, even among the potential beneficiaries of a change (say, a reduction in import quotas or tariffs) about what it will do to workers in the affected industries. The payment of explicit compensation to those whose livelihood is threatened would do much to ease such concerns in our acutely political economy. Since the political system exists in large part to effect accommodations between mutually aggrieved parties, the prospect of arranging deals between the winners and losers from economic change – especially when deals would increase average income – should appeal to politicians. For the economist, of course, the most important consideration is that such deals are likely to be a prerequisite of any market-oriented strategy for industry. As Thomas Courchene (1980) argues, attempts to block change are inevitable; since economists are not likely to defeat such attempts outright, they should be prepared to try to deflect them in more useful directions.

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[10] This obviously is not to suggest that the Pareto criterion is the only possible ethical guide for policymakers (although most economists are likely to feel more at home with it than with any other). In fact, the policy paralysis to which Paretian welfare economics is often thought to lead has recently sparked the development of several other theories of economic justice (most notably, Rawls 1971; Nozick 1974). To date, however, none has achieved the popularity enjoyed by Pareto's principle. On questions of social justice, popularity is not entirely irrelevant.

[11] As Diebold suggests, there is 'nothing surprising or reprehensible' in this (1980, 50).

POSTSCRIPT: THE USEFULNESS OF CASH

The kinds of policies that can help ease the adjustment to economic change have been described in considerable detail elsewhere (Watson 1981; Bale and Mutti 1978; Saunders 1981) and little can be gained by a recital of them here. A comment on cash payments does, however, seem called for.

The usefulness of cash payments as a tonic for loss is often underestimated in discussions of assistance, which usually focus instead on retraining and assistance in relocation. This concern with finding people new jobs often seems to reflect a belief that the labour market does not absorb displaced workers quickly enough. On the contrary, at least one study of labour market dislocation (Canada 1977) suggests that, especially during economic expansion, absorption takes place rather quickly. Moreover, some workers, particularly older workers, may not be much interested in either relocation or retraining. Generous severance pay may well compensate them fully for their loss of earnings. Government may, therefore, prefer to offer victims a choice between cash payments and in-kind transfers. Or it might offer *only* cash compensation. Recipients could then decide how they wished to spend their payments. Those who wished to obtain retraining could purchase it from publicly sponsored or private suppliers. The usual concern that recipients of public grants not have an entirely free hand in spending the money simply would not apply since the payments would clearly be designed to compensate for specific losses of income. Moreover, in many cases a more or less generous issue of cheques would save the government the quite difficult task of trying to judge the likely future demand for various skills and would also absolve it of the awesome responsibility of guiding people's choice of careers.

In sum, while making compensation programs work presents obvious difficulties, any policy of reliance on market forces must try to do so. In other societies – Japan's perhaps – a strong sense of community may be all that is needed to manage the often traumatic disruptions caused by economic change. In our own, however, the sense of community often seems tenuous. Explicit measures to help the victims of change are, therefore, likely to be necessary.

8

Five maxims for industrial-policy makers

A study as long and digressive as this defies summary. This final chapter simply tries to distil what has been said into a set of informal guidelines for policymakers interested in economic efficiency.

IS THE MARKET RELEVANT?

Although this book itself would be hard to summarize, a précis of its theme is relatively simple: despite widespread mistrust, ignorance, and even fear of the market, it remains a useful device for allocating resources, especially within the private sector. Admitted it is imperfect, but in many instances it probably is less imperfect than any possible substitute. Moreover, even when the market fails outright, it does not automatically follow that government can summon the skill, imagination, and information to do better. In fact, government may not be inclined to do better. Efficiency, as economists define it, may have scant appeal for politicians. Many groups in society can gain a great deal by persuading government to grant them sheltered, monopolized niches or otherwise protect them from the harsh winds of competition. Although the social losses resulting from this sort of behaviour usually exceed the monopolist's gain, they also usually diffuse, so the hard-done-by cannot easily organize effective political resistance.

In view of the political unattractiveness of markets, the phrase 'policy-makers interested in economic efficiency' seems a contradiction in terms. If it is, there probably is little sense in devising behavioural guidelines for this mythical species. But perhaps the situation is not entirely hopeless. As Douglas Hartle has put it:

> If one were to try and capture *the* single most important and persistent objective

> pursued by a ministry it would undoubtedly be to 'remain in power'.... A politician without elected office is like a fish out of water gasping for the air of immediacy, involvement, risk taking, public attention, personal power, income and perquisites. But politicians, like everyone else (excluding psychopaths!), have feelings of altruism, a concern for their country, and the well-being of other individuals.... Some politicians some of the time are willing to risk their careers by pushing for the adoption of policies in which they believe, but that have little public acceptance. (1979, 34)

There may thus be room for consideration of economic efficiency in the making of policy. At the very least, economists themselves constitute a growing and, by virtue of their high profile, perhaps even an influential interest group. Certainly, the profession's repute is not yet so low that politicians can afford to have them lined up in outspoken opposition to proposed policies.[1] Moreover, if Hartle's political calculus is correct, there will always be a sizeable if latent majority of citizens in favour of efficiency. Eventually, some enterprising political party may tap it. A government that, for instance, brought down the prices of bread, milk, eggs, and liquor and ostentatiously refused to invest in white elephants might well prosper at the polls. Persistent and widespread increases in personal incomes are likely eventually to redound to politicians' benefit. Thus, the following paragraphs may not be an exercise in idealism.

POLICY GUIDELINES FOR ECONOMIC EFFICIENCY

If it ain't broke, don't fix it

The most important lesson policymakers should learn is when not to act. The message of the first seven chapters is that this should probably be most of the time so far as allocation within the private sector is concerned. In all likelihood, any very elaborate industrial policy is just not a good idea.

It should be emphasized immediately that there are many other areas of economic activity in which governments obviously have a crucial role to play and in which they can hope to be at least moderately successful. They can clearly do much good by assuring the public safety and by encouraging and enforcing the act of contract. They should probably also be active in taking resources from those who have much and giving them to those who have demonstrably little. (Note that, compared with what is required to pick industrial winners, the information needed to engage in income redistribution is relatively easy to come by; all that is needed is the identities of the haves and the have-nots.) Similarly, government, inevitably and probably rightly, will be involved in the provision of health care and education. Thus, to be against an active industrial policy is not necessarily to be anti-government. In fact, many economists who strongly oppose an interventionist industrial policy also oppose public withdrawal from other fields. By the same token, those who favour a public role in other areas should not consider themselves obliged to support an active industrial strategy. Quite the contrary, the greatest threat to government's truly indispensable interventions is posed by those who support any and all intervention.

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[1] Despite several well-worn jokes, economists do not disagree much on a large number of policy issues.

It is a truism that government should act only when action stands a reasonable chance of success; there is every evidence in the case at hand that intervention is not a good bet. It follows that once market processes have been assigned the primary responsibility for the allocation of resources, public policy should restrict itself to patching up obvious market failures, *when this is possible.*

Of course, whether society in fact grants the market primacy even in principle, let alone practice, is not at all clear. As suggested in Chapter 1, the population as a whole shows no great affection, revealed or implicit, for the market. In fact, the disinterested observer might be forgiven for thinking that even among policymakers market processes are honoured more in the breach than the observance. On the other hand, the official rhetoric of all major political groups in the country gives pride of place to private, market-oriented activity in the allocation of resources. Almost without exception, the many white, green, and other-coloured papers that so casually recommend the most egregiously inefficient interventions open with encomia to the market and the principle of comparative advantage.[2] In brief, if it is decided to abandon the market, the way is open for comprehensive planning, whether of the French or the Eastern European variety, and for industrial strategies of all hues. But if the market is to be retained, policymakers must realize that their role in it should be to address market failure when and if it arises – a potentially important role but obviously a secondary one.[3]

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[2] Perhaps the clearest example is the Quebec government's 1977 white paper, *Batir le Quebec*, which pays obeisance to the law of comparative advantage but then opens its policy section with a discussion of how the province can be made more self-sufficient in the production of red meat (see Watson, forthcoming).

[3] Not incidentally, it offers policymakers the chance to deny responsibility for bad economic times. The credibility of such disclaimers is obviously less if they accept credit for good times.

Adopting a market-based strategy would mean, among other things, that policy need no longer aim for aesthetic coherence. That one industry or input or technique is more or less common at home than in other countries does not worry the market-oriented policymaker. He or she would make no attempt to produce an industrial structure approximating the golden mean that so dominates the thinking of sector fetishists of all stripes (for more along these lines, see Maddison 1980). Rather, policy would aim, as it always should, at making only those interventions whose benefits exceed their costs by margins sufficient to justify the requisite diversions of resources. It is an efficient use of resources, not intellectual satisfaction, that is at stake in industrial policymaking.

Of course, that efficient policy can be *ad hoc* does not mean that present policy – which certainly seems to be *ad hoc* – is efficient. But perhaps enough has been said already to suggest that economic efficiency is not the guiding light of present policy.

If you can't fix it, don't try

Next to a clear idea of what it is they are trying to do, policymakers can profit most by realizing that many problems simply cannot be solved and, therefore, should be thought of as constraints, not problems. Unfortunately, the demand for action may be so strong – and the siren call of the opposition parties so seductive[4] – that incumbents feel compelled to intervene. Nevertheless, the literature on government failure clearly implies that there are many things government does not do well and may in the long run regret having tried to do at all. (Whether the short-term payoff from being seen to try is worth the effort remains problematic.)

This warning is especially true in the case of industrial policy, which, if it is to succeed, requires inordinate wisdom from those who conduct it. In fact, the most serious difficulty industrial policymakers face is the virtually complete absence of the information they would need to put into effect the economist's textbook solutions to most forms of market failure. Whether the problem is choosing the appropriate amount of a public good or regulating activities that produce negative externalities, an efficient solution requires formidable amounts of information about the benefits and the costs created by the goods in question. None of this information is easy to come by. Even the information necessary to put a small-scale second-best policy into place is not readily available. In the end, a reasonable assessment of the difficulties of gathering information about social phenomena, even when the participants have no incentive to dissimulate, suggests that policymaking is a difficult matter in the best of circumstances. Before the fact, there can be no assurance that intervention will not make matters worse; after the fact, confirmation of its effects may be all but impossible.[5] This view is obviously extreme, though judging by the appalling sketchiness of most proposals for a more active industrial policy, it is not unrealistic.

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[4] This aspect of the politician's plight is treated sympathetically and entertainingly by Douglas Hartle (1979, 92).

If you're in the way, move

In many cases, government itself is the principal impediment to the efficient functioning of markets. For instance, contracting between private agents can often bring about tolerable solutions to the difficulties created by externalities, excessive risk, and similar problems. Obviously, government should do nothing to stand in the way of such contracting, yet often it does. For example, until recently, aggrieved parties each had to sue the producers of a negative externality separately. The introduction of class actions and other kinds of group suits in some Canadian jurisdictions has, however, facilitated the pursuit of such cases. Similarly, the removal of many of the more restrictive regulations on the borrowing and lending practices of the major financial institutions, combined with greater exposure to foreign competition, might well make it easier for them to perform the socially useful role of spreading risk.

Even when governments try to be helpful, they often cause more harm than good. The federal government's rules about who can and cannot get R&D grants are apparently so complicated that many eligible firms do not apply, while disputes with Revenue Canada about R&D tax credits are said, in many cases, to outweigh their benefits (Cohen, Rubin, and Saunders 1982). Similarly, the tariff on mass-produced computer chips has apparently been set at precisely the wrong level: too low to create a domestic chip industry, but too high to suit the needs of the high-technology industries for which they are a principal input.

Another imperative is for government to provide a hospitable climate for investment. This general proposition has several implications.

First, government should show as little open hostility to investors as possible. This requirement might be thought too obvious to need spelling out, yet it is possible to point to several recent measures that businesses have construed as overtly hostile.[6] The National Energy Program, with its

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5 For instance, Dan Usher (1981b) argues that one of the principal difficulties with regional investment incentives is the inability of policymakers to determine whether such incentives have any effect on investment.

6 Richard Lipsey, for instance, has argued: 'For 30 years, Canada was the place to

effective proscription of foreign investment in the oil and gas sectors, seems to have contributed to the overall reduction of investment in western Canada. Similarly, the Foreign Investment Review Agency, though only a broad-gauge screen to foreign entry, has apparently alarmed potential investors, foreign and Canadian alike. Foreigners worry that the agency will eventually decide to pursue its loosely phrased mandate more energetically, while Canadians cannot avoid being impressed by the discretionary powers cabinet was willing to grant itself – although this time the target was foreign investors, next time it might easily be domestic producers. In much the same way, the apparently increasing trend towards nationalization (more exactly, provincialization) of private enterprise must give pause to many potential investors. Of course, most governments that have taken such actions have argued that they further the public interest. But assuming the public interest is also served by the steady growth of industrial output, such policies can obviously have serious side effects. So long as a system of essentially private enterprise is to prevail, open hostility to business is likely to impede economic growth. This may be a hard truth for many Canadians, but better to learn it sooner than later.

Second, whether government policy is hostile to or supportive of enterprise, it should not be fickle. Reference already has been made to the extreme variability of Canadian laws concerning corporate taxation. Many other examples of reversals of public decisions and, perhaps even more serious, the inability of governments to make decisions promptly could also be provided.[7] When policy is changed too often, firms and individuals begin to discount its influence in their planning, and, as a result, it may lose most of its potential usefulness. Even worse, it may become a positive nuisance to corporate planners. The same is likely to be true of policies that undergo lengthy gestations.

Third, government must realize that by making clear its interest in supporting and encouraging individual firms or investments, it inevitably changes the incentive structure. A potential profit is created for those who spend time and money cultivating the government's sympathy, though

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invest, the land of opportunity. In two or three years, that view has been destroyed. Now it's around the world that Canada is not a safe place to invest' (*Toronto Globe and Mail*, 12 July 1982). That the effect on Canada's reputation may have been all out of proportion to the measures taken does not solve the problem. In such matters, perception *is* substance.

[7] The most notorious recent example of government-created uncertainty was the federal government's seven-month waffle on the status of many provisions of the budget of 12 November 1981 (see *Toronto Globe and Mail*, 30 March 1982).

their output or productivity does not change. This situation is blatantly wasteful of resources, in both the short and long runs. As H. Scott Gordon has recently written: 'If farmers see their welfare as dependent more upon what they can do about the laws of the state than what they can do with the laws of agronomy, agriculture is in deep trouble; similar propositions apply to other industries' (1981, 483). Obviously, large amounts of resources can be wasted in this process, and as the handouts grow larger and more varied, it should be no surprise that the rates of growth of productivity and output slow.

Finally, a quite substantial literature has established beyond reasonable doubt that many government programs are designed not to encourage efficient production, but to protect the incomes of existing producers. Often this goal is achieved by restricting output and creating artificial scarcities of supply. While the individual producer may yet profit by reducing his costs as far below the monopoly price as possible, freezing the market structure by issuing quotas[8] or limiting the amount a single producer can hold discourages the exploitation of the economies of large-scale production. In these as in other instances, an unholy alliance of producers and politicians can be presumed to profit by inducing inefficiencies. While government is not likely to volunteer to remove itself from those fields where it does harm, citizens' groups and other public-interest lobbies should learn that in many cases government is the problem, not the solution.

If you have to act, don't get fancy

Generally, government should keep its approach to industrial (and other) policy as simple as possible. By contrast, many recent proposals for industrial strategy in Canada seem to suggest that government should involve itself in picking and backing winners – that is, in making detailed evaluations of individual firms' and industries' prospects for competitive success.

The problem here is that for reasons that have to do with the public's natural desire for financial probity and its fear of political patronage, governments are usually required to run themselves according to rules that can be cumbersome. Thus, their discretionary judgements often take a long time to make, at least in comparison with the schedules of most businesses. The obvious alternative – to empower public officials to play at investment banking and commit large sums of public money on short notice, even though they are under no compelling obligation to make a

[8] As is done nowadays in many agricultural markets (see Green 1982).

profit and probably cannot easily be dismissed if their judgement proves faulty – seems wholly undesirable. Giving bureaucrats and politicians the power to determine profit or loss for individual firms in this way is hardly likely to improve a country's political life (see Usher 1981b).

Another problem is the difficulty of deciding which firms or technological processes are likely to do well and which are not.[9] Governments do not have information about the future that is better (or worse) than that available to most banks or investment consultants, though since private agents are likely to suffer greater penalties when they get things wrong, they can be expected to work harder to get them right. The real difficulty is that once government has become involved with a firm, locality, or industry, it cannot easily extricate itself should the investment in question go sour. An obvious remedy here is to try to de-politicize the process by keeping the government's investment agencies at arm's length from the legislature. It has to be asked, however, why such agencies should be public in the first place.

A third problem for government is expense. A policy of supporting individual firms presumably does best if many firms are backed – the way to be sure of betting on a winner is to bet on many entries. On the other hand, elaborate assistance programs are very expensive if made widely available. Thus, it may be considerably cheaper in the long run to provide only general encouragements to research and development, saving, investment, and the like. The tax system is obviously tailor-made for this purpose (although earlier remarks about the unwisdom of adjusting tax rates and rules too often should be kept in mind). The obvious advantage of general tax and/or financial incentives is that signing cheques and processing tax forms – two things government does more or less efficiently – do not consume many resources. By contrast, poring over the balance sheets of individual firms obviously does.

A final reason for the government's avoiding detail is that in many cases in which intervention may be warranted, theory justifies *only* general intervention. The argument, for instance, that investment must be encouraged because people have a natural though inefficient bias against future returns says not just that they will not spend enough on high-tech investments, but that investment of all kinds will be under-funded. Similarly, if risk-aversion is considered a problem, it is not just new industries that are likely to require special support. Rather, assistance should be

[9] Why likely winners want help in the first place – the other obvious difficulty with the picking-winners strategy – was sufficiently emphasized in previous chapters.

offered to all risk-takers, some of whom may be established operators in the economy's oldest industries.

For all these reasons, government should probably do everything possible to avoid making detailed allocative decisions. Economy-wide measures – reductions in the taxation of investments, compensation of one kind or another for risk, general measures to encourage savings – are likely to be more suited to government's particular skills than the high-rolling required by a strategy of trying to pick winners.

If you choose the market, grease its gears

The purpose of this study has been to suggest that the market, with all its faults, may yet be a useful mechanism for allocating resources, especially in the private sector. A corollary to this argument is that, except where specific, correctible market failures are observed, the economy may have little need of industrial policy.[10]

On the other hand, a policy of relying solely on the market may come to grief through its own successes. The maximization of output that the market can be expected to produce will result in net social gains but only *net* gains – the creation of new wealth often requires the destruction of old. This fact alone puts the usefulness of market processes into question. If one adopts the economist's usual ethical guideline that a change is not an improvement unless no one is hurt by it, it is difficult to sanction economic changes unless the losers are compensated. Ethical difficulties aside, prospective losers are unlikely to submit peaceably to change and will use the political process to attempt to block it. Thus, if nothing is done to mollify the discontented, beneficial change may be impossible. But because efficient change, by definition, creates more gains than losses, mollifying deals between winners and losers may well be feasible. Economists – who obviously believe in deal-making – should, therefore, feel at home designing industrial adjustment policies.

Given the political and bureaucratic forces pressing for highly interventionist industrial policies, if economists do not put their full energies into working towards application of these guidelines, their role may be reduced to that of Cassandra, and they may not have long to wait for fulfilment of their direst warnings.

[10] Unless politicians feel it desirable to apply the label, almost tautologically, to the possibly patchwork policies required to correct market failures.

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